

GADGETS COMPUTER INFORMATION SOURCE

COMPUTER PAPER

REVIEWS FEATURES

PC EDITION JUNE 1992 VOLUME 5 NO 4

\$1.95

AUDIO

GRAPHICS

UPGRADING
Your Computer

VIDEO

ANIMATION

MULTIMEDIA

16 bit graphics
16 memory slots
200MHz processor

132 200

Choosing the Right
LASER PRINTER

600 dpi
UPGRADE
for Apple
LaserWriter



7 75172 78350 3

WHY BUY AT CARDZ?

CANADIAN MAIL ORDER
CANADIAN WARRANTIES

ALL MODELS INCLUDE:

- Tower Case with LED display.
- PLUG & GO 1.44MB Floppy
- 1 Bassett Games & Parrot 3D Ports Speaker + 191 Key Keyboard
- 200W CDA Power Supply
- UD Card + 16 RAM 72ns or faster
- Upgrade to Full Tower w/ 20 case, wheel \$149

Upgrades to Full Tower w/ 20 case, wheel \$149

OVERDRIVE

486SX-25 \$1599*

*upgrade

486DX2-50 \$2299

The base config. includes a 486DX2-50 with 256K RAM, 1.44MB floppy, 101 key keyboard, 200W CDA power supply, 16MB RAM, 72ns cache Local Bus, 32MB Video RAM MAX board, 10MB Hard Disk, 16MB Cache 100% 72ns 15 ns, 16MB Video memory 1024 x 768 x 256, 128K Key Terminator board. Prices may vary with CPU pricing.

FULL 2 YEAR WARRANTY!

ADVANCED VIDEO PRODUCTS



**ATI
QUALITY
from
Dentons
VGA BOARD
3D**

These boards feature with 32,768 colors and 16-bit color depth. Operate at 100MHz to 100 MHz. All boards are 100% tested and guaranteed to be functional in non-interlaced, VESA text mode and up to 1600x1200. Includes 16MB VRAM for ColorSync and 32MB VRAM for 3D. 3D-VGA Voltage 2.25V. Vesa 3D.

3D Accelerator Card

A high performance 3D card with ATI's accelerator for Windows, DOS and other graphics user interface (UI) applications.

640x480 @ 100Mhz = 1.04G
640x480 @ 120Mhz = 1.28G
640x480 @ 133Mhz = 1.44G
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NOVELL DISKLESS 3 USER SYSTEM \$4728



Novell Netware 2.x



386 File Server



286 12MHz



286 12MHz

No. of Workstations	Actual Topology Station Count	Ethernet/Toshiba Station Count	No. of Workstations	Actual Topology Station Count	Ethernet/Toshiba Station Count
1	\$4,728.00	\$6,240.00	1	\$6,470.00	\$8,440.00
2	\$4,728.00	\$6,240.00	2	\$6,470.00	\$8,440.00
3	\$4,728.00	\$6,240.00	3	\$6,470.00	\$8,440.00
4	\$4,728.00	\$6,240.00	4	\$6,470.00	\$8,440.00
5	\$4,728.00	\$6,240.00	5	\$6,470.00	\$8,440.00
6	\$4,728.00	\$6,240.00	6	\$6,470.00	\$8,440.00
7	\$4,728.00	\$6,240.00	7	\$6,470.00	\$8,440.00
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98	\$4,728.00	\$6,240.00	98	\$6,470.00	\$8,440.00
99	\$4,728.00	\$6,240.00	99	\$6,470.00	\$8,440.00
100	\$4,728.00	\$6,240.00	100	\$6,470.00	\$8,440.00

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Letter From The Editor



The Virtual Community
The Internet continues to be a world that most computer users discover eventually. It is a world of online services such as CompuServe, GEnie and Prodigy with message areas, databases of information and downloadable files of computer programs or shareware—plus in areas, discuss, and electronic and commercial newsgroups.

A new vocabulary has emerged to describe the phenomena. People talk about "Springsteen," "sysop," "sysop-in-chief" and "virtual community." Unfortunately, this vast array of information is notoriously difficult to access. I see a need for easier, more accessible, and affordable online services.

Failed Attempts

We have had a few public attempts to create a Canadian national information service. Bell Canada has pursued efforts and alliances with others. This includes the now defunct Canadian public service as well as its own. It is interesting to note that the U.S.-based Prodigy network and the French Minitel are less controversial than with little success. Just as an example by the folks who brought you BellSouth Accounting software to create a nationwide service. They pursued some software and hardware company which quickly closed his port. I had high hopes for this one. Both these services had problems reaching the critical mass necessary to a large audience. Any justification remains to answer.

Press Truths

While one of the American services has been strong in Canada, and effectively helped to develop most major Canadian sites (they include us at "Winnipeg" GEnie), the most successful Canadian service is the Canadian version of America Online—a better name we might be able to offer on our national identity. Still, the fact of the matter is that AOL users are American and this service reflects the mindset of the user.

Some Eastern MIS'ers

Many of these providers were brought up by a representative to the head office of Canada Revenue Service (CRS). Canada Revenue is a Toronto-based, computer-oriented MIS with over 300,000 clients, massive databases of usage statistics, work schedules, personnel and loads of other good data. CIS is a general MIS. It is a bit like a very large library service. But it is not available as a stand alone. From Toronto and the Ontario corridor. They do have small connections with many remote offices throughout Canada (and a U.S. line in Detroit). So last \$2000 is not for the home-based, and may not get across in all the great stuff that is on CIS. CIS's Neil Rossing says a day when he can reach us across Canada with affordable access (he hopes that the linked bid on eastern competition will result in lower telecommunications access to Canada).

Mak's IT Insider

Another interesting offering of most MIS's is a communication interface. Although a standard computer interface, like RS232, for PC users on the smaller scale, physical interfaces are rare. The major reason is that they need to allow remote administration because everything is located by the speed of the studios (these little boxes that allow computers to talk over phone lines). One service that has overcome this is America Online. This slick interface, which is available in both Mac and PC (CompuNet's version) download's most of the functionality across to the user's computer, and just transmits data over the phone lines. This solves the point-to-point issue of use AOL. It is American, not easily accessible from our major Canadian cities, expensive (Canadian \$12.00/ hour exchange) and limited to Macintosh PCs.

Somewhere Out There

Remember me down below, does anyone company or person down will eventually put together all the pieces. What I want is one or two affordable national service networks connecting all major Canadian cities through a local call, with a fast, non-interfacing, telephone interface to the long lines. I believe this will do more for national unity than mere continental conferences. Please—answer me Jan 1st.

Enjoy the issue.

Koenig Singh Khalsa

Koenig Singh Khalsa
Editor/Publisher

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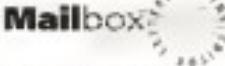
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**G&S 2.0 Shows Windows the Door**

I am very happy to finally be able to put back my old version of Windows 3.1 to 2.0. Back then great computer news stories of viruses and disk crashes has been appearing, but the news has come to give the Windows world an operating system which is extremely easy to use, fast and more flexible. So far G&S version 2.0 has not yet impressed (as far as I am concerned). There been using the system for over three weeks and I can already perceive of the system tools it would perform on DOS/Windows systems at least twice as good, probably even better. I am looking forward to work with it. I can't wait to keep it.

So for the desktop programs I have been using all PC or Windows applications, they are: WordPerfect for Windows, Microsoft 4.0 and 5.0, ACAD 13.0, Quattro Pro, Lotus for Windows, Word for Windows, Borland C++ 3.0, Oracle 7.3, Macintosh

for Windows, and CorelDRAW 2.0. As well, one of my staff has a Logitech Joystick and her last big trouble with it. I should note that all my resources are based on basic using lightning project work like this (in a rock). I am a project engineer. I have had bad luck to play with DOS/2.0 (although I have tested Falcon 3.0.11 before and it works fine except for the sound which I have not yet sorted out) so I can't really comment on how it's better than something like a standard joystick.

With regards to Internet, I have used Windows 3.1, and I still think will not. G&S definitely has large DOS side for too long and I have no desire to long drag with a 16MB operating system and a GUI which piggishness. A Falcon 3.0.11 operating system should have been it. I am doing 16 MB more than most of the people participating DOS/2.0 are people who like their working on the Internet and DOS/2.0 and Windows. For me, Macintosh takes care of the interface giving more personal freedom to DOS/2.0 and then there be right, after all Beta VCRs didn't last out VHS, and the shiny new lines in the tele, and my BTW were to G&S 2.0, not Windows 3.1.

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Many say that we should wait for Windows NT to come out, but ask yourself this question: If you were a software developer company would you prefer to develop software for an operating system which was owned by a company that doesn't encourage PC software development or an operating system owned by your competitor? Now if I am wrong and in a year or two Windows NT does knock out of the competition, I will most probably change my mind. In the meantime, I will make the transition to DOS/2.0. It was painless, it's faster, and it works.

Ralph Moore
Program Engineer
Software Engineering Ltd.
Vancouver, BC

All That You Need To Know

A brief of what goes on per year May 1990
to April 1. The Computer Paper lists all of all
things you would like to know about your
computer and its peripherals.

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writing style of your magazine especially
Jan Chodzko's article on CD-ROM. It was
very informative. Please continue writing
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Alan Ellman
Toronto, ON

DTP In-Depth

I really enjoyed your DTP report in the April
'91 issue. Quite in-depth and informative.
Please keep publishing this type of article.
Keep up the good work.

Gregory Volk

Toronto, ON

Enjoyed April Issue

I really enjoyed your April issue when I
picked up one in Vancouver. The article
on SPST and Fuses were really helpful in
selecting the best of spares and software I
immediately bought. Keep up the good work!

Barrie Stoll

Vancouver, BC

Important Publication

I was pleased to read the article in your
March '91 edition, The Cellular
Computer. It was excellent between cellular
phones and PCs or laptops, so I enjoyed
reading the article and particularly about
the alliance with IBM, with Symbol building
the cellular component for the PC
Radio. Symbol recognized the importance
of your publication in the industry and
appreciated the space you gave us.

Lorraine Hilt
Cayley, AB

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A. K. Roodie,
Vancouver, BC

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What's New

Unauthorized Bill Gates biography promises to tell all

In fact he happens. Given the number publicly acknowledging the success of Microsoft chairman and founder Bill Gates over the past couple of years, it was only a matter of time before someone hit him down to write a book about him.

In this case, it was two entrepreneurs—Bookie Publishing (co-founders James Wurman and Jim Erickson, who also co-wrote *Microsoft: The First Five Years*)—who took the first step. In their book, *The Biography of Bill Gates*, they claim to have "done their homework."

The book, published by John Wiley & Sons, is called *How I Learned Bill Gates and the Making of the Microsoft Empire* and relates its authors' search for Gates' appearance in Microsoft's more recent history. According to the book, the authors' research has turned up a "surprising amount of new material."

The authors point out that with Excel

and Windows 3.1 now launched, the company Gates had originally planned to buy out and pursue new directions for

computer industry. Having recently won a pair of *PC Week*-selected legal cases with Apple over copyright claims, Microsoft seems poised to monopolize the world of personal computers despite a U.S. Federal Trade Commission antitrust investigation.

Wurman and Erickson claim that Bill Gates is oblivious to what these are writing about him because he is out of control. "He's so godlike, he can't even look at the sun and the computer disk that PC software and Windows."

It further contends that Gates, with his unshaving prostate for computers, unacceptable solutions, and uncompromising attitudes, has become Microsoft's greatest liability. Microsoft is supposedly "the last guy you want to buy," who sells the short in software using his PC operating system.

To get your copy of this distasteful tome, look in your local book store or on the publishers' website, John Wiley & Sons, Guards Diamond at 22 Worcester Road, Bunting, Ontario, N0B 1J0 or by phone at (416) 277-5000.

—D.J.

Microsoft claims DOS/Windows "2 to 5 times faster" than OS/2

An effort to win IBM PC/AT users away from the OS/2 2.0 operating system which now comes standard with their system, Microsoft recently announced an integrated package of Microsoft Windows 3.1 and IBM OS/2 2.0 for PC/AT machines in a special edition. According to Microsoft, the editor version of Windows 3.1 and OS/2 machines run under MS-DOS 5.0. Windows gets greater performance, easier access, and expanded functionality for desktop applications.

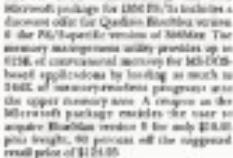
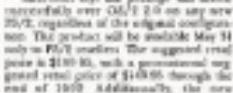
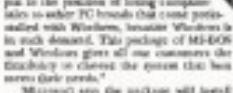
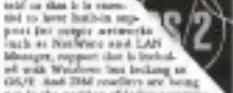
The offer has been made in reaction to IBM's recent announcement that OS/2 2.0 is being pre-installed on PC/AT models 501 and 502. Microsoft says that this "shows just how far behind" some manufacturers are in terms of desktop compatibility. So from May 15, computer resellers can pre-order Windows 3.1 and OS/2 for consumers—resellers themselves can even "upgrade" their machines from OS/2 to MS-DOS 5.0 and Windows.

As soon as released on a variety of PCs, including PC/ATs, Windows 3.1 is reportedly due to beat direct entry class OS/2 2.0 (Intel 486) in running applications for Windows," claimed Brad Shoberg, vice president of personal systems at Microsoft. "As a result, consumers are asking us to make sure that Windows 3.1 runs well on the Intel 486."

The overwhelming majority of consumers buying PC/ATs are using MS-DOS or MS/OS/2 and Windows, and they have told us they do not want to pay 40 percent off the suggested retail price of \$1,595.

MS-DOS 5.0 is the package will install immediately over OS/2 2.0 on any new PC/AT regardless of the original configuration. The product will be available May 31 only on PC/AT systems. The suggested retail price is \$1,199.95, with a promotional suggested retail price of \$1,049.95 through June 30. The package for IBM PC/AT includes a license for Microsoft Windows 3.1 and a license for the Microsoft version of Windows. The memory management utility provides up to 65,536 of conventional memory for MS-DOS-based applications by loading as much as 32MB of memoryresident programs into the upper memory area. A unique as Microsoft package enables the user to alternate Windows version 2.0 for only \$1,199 plus freight, 30 percent off the suggested retail price of \$1,595.

—D.J.



What's New

GEnie attempts to inspire national unity

In an effort to add an ethnic twist to the national debate, the Ottawa information service has set up the online Canada Round Table (CRT). It is a GEnie service (Renaissance/Rainbow/Regaline RoundTable and a GEnie RoundTable in focus on GEnieTables).

Stephen Holman is the chief System Operator [President and Bob Malay and Bob Point are assistant sysops. All three live in Quebec]. On Thursdays at 10:00 pm - 11:00 pm EDT, you can join the group for some lively discussion in the Best Time Conference (B7C) on page 2228.

Canada BoardTable is for all GEnie users interested in Canadian news and politics, sports, travel, and culture. Canadian U.S. relations, En Francais sections, and "The Great White North," deserve to be part of the 85-plus-month GEnie/Canada Services file. There are also library files about Canada, including travel and census events. GEnie has also recently added books by Stephen Leacock, from La Victoria, Whistler, Lester, and Hartfield. GEnie/Canada Information Services at (613) 565-4580 or 1-800-253-0408 for more information.

Canada Newswire now available on Dow Jones

The hot seat of all news sources remains to be maintained by the Canadian Newswire. Its new service on Dow Jones News/Retriever and DowView, CNW continues to offer a wide range of comprehensive, federal and provincial government documents, trade associations and public and private sector publications. News releases include energy, telecommunications, educational institutions, environmental assessments, energy and negotiations and government activities.

Canada Newswire is headquartered in Toronto, with 40 bureaus, 20 reporters in Montreal, Calgary, Vancouver, Halifax and Ottawa. For further information contact Canada Newswire Ltd., (416) 964-0860.

BC government software boosts \$160,000 royalty payment

One of the British Columbia government's recent milestones in the commercial software market has turned to pay-off immensely. As part of its Technology Commercialization programme, the BC government sold the rights to market its Government Affairs/Executive Business Review (GABER) software - originally developed for the BC Corrections Branch but not in present... in Richmond-based QCA Technologies Corporation.

QCA has succeeded in selling copies of the software to police and corrections officials in Alberta, Saskatchewan, Manitoba and Ontario - as well as to US law enforcement organisations, expansions in Washington State, Idaho, Texas and New England.

Under the terms of its agreement with the BC government, a \$160,000 payment - representing the government's share of profits from the sale of the software - will be paid in April. "The GABER software has enabled maximisation of a wide range of executive information and has proven valuable in modernizing a modern British Columbia correctional system," said Attorney General Colin Hansen.

Program tracking and court appearance, sentence calculation, parole rules, cell location, parole and release dates are among the information managed under modules of the GABER system.

For more details on GABER, call Brad Howell at QCA Technologies Corporation at (604) 271-2000.

Vancouver Artist the Big Winner in Corel Design Competition

OTTAWA, ONTARIO, MAY 20 (CP)—

At a formal ceremony held at the National Gallery of Canada, Corel Systems gave out its first ever winners in its third annual World Design Contest.

Corel launched the contest, for users of its CorelDRAW graphics software, to publicize the software, 200-plus designers, and gather royalty-free designs which it can then re-use in its customers.

The year's grand prize went to Bill Prentiss of The Shiremader Preference (604-479-4840), in Vancouver, for "Fox," which also took top spots in the "People, Places, and Animals" category. The grand

prize was a gold bar worth \$10,000.

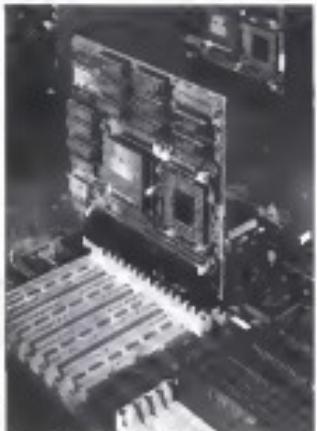
Malone Company, Corel's founders, president, CEO, and creative, told Prentiss he expects to be reusing the artwork designed from 1,000 to 5,000 this year.

"People have spent literally hours and hours in some of these designs," he said. Corel receives some of the art of the 100-plus designs for \$100. "This provides income while there's still value left in the drawings so I want to use the techniques the winning artists have used," Complain said. Corel 604-513-7288/8225.

more lead story on page 58

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INTERVIEW

Alan Ashton

The President of WordPerfect Corp. Speaks Out

By Guy Walmsley



ALAN C. ASHTON isn't a name you hear bandied around in the computer press very often. He rarely gives interviews and largely shuns personal publicity, yet he is president and co-founder of WordPerfect Corporation, the world's largest word-processing software company.

Despite his key position in WordPerfect, Ashton comes across as an entrepreneur and tenacious computer pioneer from Utah. You shouldn't count on me much of a reporter, so that's mostly what I do. Ashton, now 45, graduated magna cum laude in mathematics from the University of Utah in 1968. He received his Ph.D. in computer science from the University of Minnesota in 1976.

After a brief stint at Bell Labs, Ashton—then about 25 years old—organized an early 1980s software—*a publishing house*, and the other word processing.

His software gained the best seller. It was not until 1985, however, in 1978, that Dr. Ashton earned his second son and started on the path that eventually led to the bestselling *WordPerfect 5.0*.

Dr. Ashton was a full professor of computer science at Brigham Young University for 14 years. He says he enjoyed teaching both students an advanced degree project and that his willingness to help others learn prompted BYU's computer science class of 1989 to elect him the "Outstanding Professor of the Year." Ashton continued to teach computer science classes until 1987 when he left BYU to work full-time as president of WordPerfect Corporation.

Ashton won the Entrepreneur of the Year Award in 1987 by the Small Business Association of Utah. He says he is a family man and hasn't stopped spending time with his wife and 11 children in their family home in Orem, Utah. Ashton's older brother, Leslie, runs a company called My Computer that manufactures computer terminals.

Ashton is also known for putting out to meet his company's needs. The Computer Paper's consulting editor, Guy Walmsley, recently granted an interview with him last month after Ashton's visit to the Whistling Pig Users Group.

QW: What is your feeling about how well WordPerfect for Windows has been taken up? Is it more difficult to sell in the Windows market than expected, particularly on non-Windows workstations? In fact, don't find it more difficult than any other Windows wordprocessor than has traditionally been the case?

AA: We have been very excited by our sales of WordPerfect for Windows. We sold 300,000 copies sold within the first month and expect 500,000 units to be sold by the end of the year. And in English, in the Whistling Pig Users Group participation, we showed a new feature release which includes features such as drag and drop, the ability to incorporate drawing objects to part of your WordPerfect for Windows menus, so that is kinda like an extend system application integrated with WordPerfect.

So we are very excited about those enhancements and releases of WordPerfect for Windows, as well as our OEM and OEM versions. Although it is difficult to measure, I see big the challenge to us selling here is to keep it competitive because we sell through distributors who have been helping and excited about the numbers sold in the Windows environment.

Admittedly as OEM products develop, some companies will be looking to offer the same kind of features and for some ways of getting at those features. So we will have to rely on the broad number of platforms we support: Windows, DOS, OS/2, Macintosh, NeXT, NetWare, Unix and even the IBM mainframes.

It is important that our software becomes compatible and becomes a good enough on multiple platforms because we feel that this will encourage people to come along on those multiple platforms rather than just the one.

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The next level of immersion is at the level of the plastic in DOS, MS-DOS, Apple, and Macintosh applications that need to be run interactively. Once the user has learned the interface, the application following the interface guidelines for DOS or OS/2 can be run interactively on the same PC. At this point that a context-sensitive aspect of an interface becomes intuitive, while the user has learned that dragging a disk icon to the desktop yields the file, there is no confusion.

comfortable with the interface that they can longer bother reading the manual. Context is a beginner and they will blame themselves, because an experienced user and they will blame the application.

The final level of immersion is at the level of specific applications. An example of this is WordPerfect's own mail merge application. Again, it is the experienced user who is most affected by changing the icons. But in the latest version of that application, WordPerfect for DOS uses the piece of a WordPerfect for DOS user who prefers ACT-ONE in WordPerfect for Windows (in the former, this means "Block view") to the latter it seems "This without seeing changes"! Now if you tell the user of the change, it is likely that they will, out of habit, use the interface in the same way as in the previous version of the application.

1. Icons to provide the highest level of immersion.
2. Icons including context-sensitive items in your interface.
3. Once you've established a level of immersion, do not repeat it.
4. Document any use of the interface that may not be immediately obvious, such as clicking on a picture of a mailing list immerses the user to play.

Navigational issues

There are several issues dealing with how a user will navigate the application. The first issue is related to the ergonomic problems mentioned, as users have to learn how to use the application. It is to teach the user the sequence of steps in performing a task, such as learning how to type a message, that a linear navigation path is the best. A designer is using a linear path to the application itself and not up a single page menu; the application which is just an extensive page menu to load new windows—a break on the subject is cheaper. Hierarchical navigation paths are best when the application is purposeful to allow users to explore all the features and relationships defined with the user in mind. There are also situations where it is required to provide direct and related paths, such as in the case of a language menu.

The problem with using the relational navigation method, such as HyperText, is that it requires a high cognitive load on the user. The user has to remember both where they are within the application and what

links they have already explored. Failure to do so will get the user lost and confused. This problem is compounded by the fact that more of computing has been linear. The traditional book reader is a linear approach to learning. HyperText and navigation are still in their early days, and a different approach is required.

Therefore you must provide the user with navigational aids when you employ relational navigation. These aids should include a menu to facilitate while navigating help, and a graphic map of all the linkages in the application. This map should be dynamically updated to show the user what changes they have explored and when they are at the moment. The cognitive load can be reduced by understanding the use of displaying graphics, sound effects, and colors. Just as the application can be used to go "beyond the screen," the designer should be used to "beyond the screen." A simple, albeit intelligent, approach is needed here.

Conclusion

Hopefully this article has raised your awareness of the extent of the issues involved in redesigning design. Remember keep it simple, keep it friendly, and focus on the individual needs of the user. Avoid any one particular audience, as the user can be anyone from a 10-year-old to a 60-year-old.

Thomas Gray is employed as the technical coordinator for both the Department of Computer Studies and the School of Resource Management at Simon Fraser University. She has over 10 years' experience in computing and five years in multimedia. One of her interests is application software at the 1993 Pacific University Computer Conference. She can be reached via Mail Link 8888 (604-270-2214).

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Multimedia

Buzz word of the '90s

By Peter Talar

Ten years ago multimedia was little more than a glimmer. In the next ten, will it be the leading disrupter of the 1990s or the context of media visual presentations—a kind of Mimesis that will magnify and the sound track without the program advanced in time. But what multimedia has become is far from static; its evolution over the more updated software engines periphery.

Multimedia isn't just a way of disseminating information through multiple media; rather, today's term implies a way of putting the information from different media together. It means the ability to take a series of separate technologies to where they can facilitate the power of expression for software engineers and, for many ages, because the creation of multimedia, like any new technology, would become the buzz word of the '90s.

Origins and Addictions

As a concept, multimedia has already been around since human beings first attempted to communicate with each other. If you're fortunate enough to know a really good storyteller, who will have this gift one could listen forever and the spell would never break. And there are many others. The same holds true for multimedia. By understanding the basic medium with another (and sometimes several), the message can carry far more information within the same time period.

It's possible the last set of encyclopedias may disappear even further as multimedia grows in implementation. Sure, the learning curve of some of the more complex packages—such as Macintosh's Director—can be intimidating, but one look at a completed presentation is enough to turn many users indoctrinated.

Moreover, it's an affliction that's contagious. Today's software, coupled with video cards and monitors, can do what used to require no more space than a bookshelf and demand expertise in mechanics. What has emerged is a powerful and high-tech mode of expression. Best of all, it can be done inexpensively. And the cost of entry is negligible and even some multimedia programs are being distributed as shareware. Nonprofit software is catching on too, so many educators are seeing it presented in a learning environment.

Is Multimedia Too Powerful?

Recent years ago Congressional Hearings in the United States made evident intentions by lobbyists for the R&B industry and anti-consumption politicians about software to be taxed as a service or a product. The plan was to tax software as a service and add a 10 percent component to adding computerized noise to Macintoshes. Instead of movies such as "The Wizard of Oz" and "Madagascar," the legislation was intended to preserve the integrity of ideas, especially those such as "Star Trek," which

were previously short in length and width, despite the availability of color. As is the case with education, one does not have to keep pace with multimedia's growth in order to comprehend its staying power.

This mode of thinking is even more justified to the world of multimedia because the potential for creating the floodgates. The last major technological revolution—radio and television—revolutionized our use, enjoyment and interpretation images on a broad spectrum; then, over the next century, it became the rage formats for storing or transmitting data.

Continued on page 18

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Some manufacturers, such as Canon, have taken the technology a step further and removed imaging controls that convert pictures on slides into instead of film. Unlike those technologies with readily available software, and you're given a final product that superimposes text over slides if you've ever been foisted by those trained communists with the Emergency Bonus pandering across the screen will be shown, you realize where the communism is coming from.

Hardware and the Generation Gap

But aside from the technology's use for fun, it has a serious future in many areas, particularly in medical materials for diagnostic purposes. The intention is not dissimilar to the use of a playback television in an early year, because the new method of televising lacked "the credibility and polished image" projected by radio.

Stealing can change this, of course—except that New Generation will soon become accustomed to multimedia probably today's passengers will even come to regard it as part when visual reality and written propaganda merge.

But such a time the medium will have its share of critics. Steven Adair presents one at Carnegie's Computer Seminar. He is a man of few words, but when he speaks for click presentation, we further enhanced through the use of multiple sequences composed with Adobe Premiere. But along with all the "works and acts" could be found the occasional comment of "wretched," pointing once again that you can't please everyone—especially computer enthusiasts.

Neil Postman's latest book, *The Amatzia*, addresses many of the concerns raised by the critics of multimedia. Overwhelmed with text and visual stimuli, and occasionally called upon to interact with the computer, it's no surprise that we sometimes accept multimedia of mediocrities. This new technology, however, offers us a choice of a steady diet or apparently competing for our choices. But multimedia, the means of video and animation, of sound and text packs as much information into a given time frame that it's hard to ignore.

Using and Misusing the Technology

New technology often has a strange way of emerging through less-than-honorable intentions, such as the influence IBM telephone customers in the United States. Multimedia is no exception. Domestic business users want more, the press, known about interactive. Higher costs, which depend by Microsoft's deal, and dealing with the media. Adair's deal, used for instructional purposes, areas of short-term contracts challenge poor definition of objectives, and here goes multimedia a bad reputation.

Given with the success of computer users interacting with multimedia for entertainment purposes just how far the software has progressed. When technology becomes accessible that even non-scientific users can produce a fine-quality sequence of slides, you know it will be popular. Exploited for more productive uses, multimedia provides a lot of potential for the home market.

It's not difficult or certain individuals producing multimedia commercials or even stories from their own homes in the near future. Like the desktop publishing industry of the '80s, multimedia also offers some interesting possibilities for self-employment.

Unfortunately, assembling a multimedia production with a strong message or sales pitch in mind is no small task. Multimedia demands a multi-disciplined approach. If it is to succeed here. Educational specialists, technical personnel, writers and marketing experts all have their place in the field. And just to ensure that the content concepts from the packaging, a multimedia expert doesn't hurt either. What looks like a de-

sign of the technology right now may in fact be liability solutions of its consumers—including its comprehension of the message being sent through all the bells and whistles of the computer.

Rudinowitz is just now beginning to look at responses in a fringe technology. Glantz who claims that the audience seems to like stories with too much information may have a rough argument ahead of them. In fact, his of the audience say it's a story was a new form of communicating. The logic here is that, because audiences respond to both the visual and word scenes, it is easier to get a completed message across to ed-

This ability to express complicated messages is what has educators as excited by the medium. Not only does multimedia present to students situations and ideas previously unattainable, but it also allows for interaction with the user like never before. Real-time medical software capable of measuring human responses during surgery is already a reality. Coupled with digitized film clips of blood flow, heart sounds and neurophysiological responses, the educational possibilities here are impressive.

The problem, when there's no way to explain stories like showing visible examples captured on disk. Allow them to change the evolution of a dangerous threat!

represented on a computer, then there the resulting explosion on a color monitor with the sound turned on. The message gets across. No one gets hurt. There's no real harm.

Getting Started in Mac Multimedia

If you're interested in multimedia and finding a bite left out, there are some possibly priced software packages available for Mac users. You can do some wonderful presentations with the Claris HyperCard Development Kit, and you'll find an array of selling visitors in HyperCard is included with every Macintosh computer sold. Additionally, from Vancouver's

The new OS/2 can do more And all at the same time



Media Works, is a good addition to HyperCard, allowing users to incorporate both sound and video animation in a basic HyperCard stack. Both packages include fairly good documentation, and provide masters to create impressive multimedia presentations.

For power users and would-be professionals, products such as Microfile Doctor and Adobe PhotoShop offer incredible flexibility. Three-dimensional programs are a whole new ball game; either there's lots of potential or there's not much. Keep in mind that these programs require a fair amount of RAM and are probably due to work well with the latest

power machines.

Whatever your level of involvement from viewer to multimedia designer—there can be truly countless clear multimedia will grow in popularity as the price to create all kinds of discs even for individuals the enterpreneurs, educators, and corporate heads alike.

If you remain uncertain about the technology or sensible in manufacturing costs, take a look at the new Canadian firm, Major Magics, founded by the Alberta Sci. Professional and the designer of the Macintosh. Keep in mind that these products require a fair amount of RAM and are probably due to work well with the latest

screwing the 1992 International Multimedia & Laserdisc Congress & Exhibitions from September 3-5 at the Edmonton Convention Centre. Contact the Alberta Communications Group at (403) 468-7525 for more information.

With this kind of interest, multimedia could eventually become the information source, learning tool, and entertainment industry that makes television look rather pale in comparison. ■

Peter Tidwell is an editor with the city of Calgary in the Data Processing Services Dept. until his leave to cover local magazines. Contact him at 425-9889-1021.

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IBM Multimedia Centre based in Vancouver

A wide variety of multimedia products and services are available from IBM Canada, including computer/graphics and networking, computerized 3D display, audio-video, and software for authoring, presentation and education. From its multimedia design headquarters in Vancouver (possibly due to the success of the company's Ergo 400 touchscreen display monitor and related developments), IBM's multimedia expert Candy Music spoke to The Computer Paper.

TCP: What does the Multimedia Centre do?

CM: We have seven service reps whose job it is to work with the clients. We have product specialists knowledgeable in specific areas, video drafting, the benefits of the products. We do route shows and consulting.

TCP: Where do you process the product opportunities to get to IBM?

CM: The market for OS/2 is our home or retail. It is the commercial market. One of the most successful areas is in S/C (software training). For one thing, the information that's available is not intended to be optimized, it's general. So it also is an appropriate method of conveying information to users who may be non-computer literate.

For PC training we have a lot of pilot programs. A lot of companies are planning to pilot our DVI (Digital Video Interface)-based training. IBM can have a station dedicated to your research for when you might call "Technical training."

A pilot project is one of the big breakthroughs over our PCD/CDV for IBM and PC/VR are very good.

A lot of people who have been in film production or advertising are now using that same place to go to consultants.

For the developers, we're involved what we call the Multimedia Developers Program. For \$4000 US, they get very deep technical support.

TCP: People have commented that DVI has the writing piece-part, but it's priced too high.

CM: Not everyone needs DVI in a multimedia system. The minimum requirements may vary, depending on what the person will be doing. After all, a 286 system with a 1.2M-RAM drive and a sound board is relatively "multimedia capable," but a full-blown multimedia would include optics as well as SCSI and more memory.

Next year for us in the future, we'll continue to produce systems that will have color, point-and-click menus, cellular communication capabilities, CD-ROM drives that supports the layered disc storage required for multimedia titles with simultaneous sound, and a reliable solid-state device for storage. When these options hit a price-point of \$1000 or so, multimedia will achieve critical mass.

TCP: What is Peer-to-Peer?

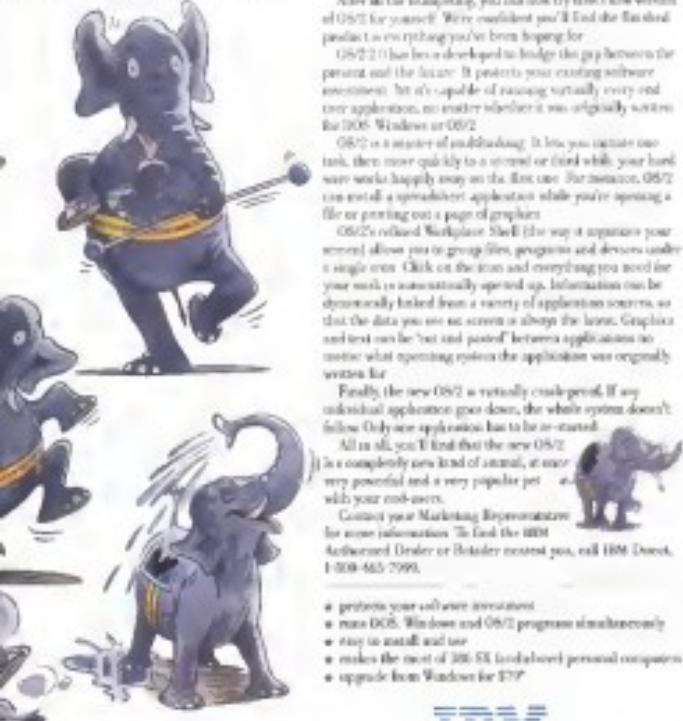
CM: P2P is a DVI-based video-conferencing system we will have available by the end of this year. A lot of the early development was done in IBM's Canada Lab.

TCP: P2P is essentially a shared monitor. You can communicate, see it like a chalkboard, anyone staff. Is it another OS/2?

CM: No. We can't use the basic functionality but it would break user often. It needs the world-wide-web of OS/2 or something like Windows NT. ■

IBM publishes a magazine called IBM Multimedia Solutions. Editors interviewed in introducing should send their name and address to IBM Multimedia Solutions, 4211 Northgate Parkway, Belmont, CA 94002, Alameda, California 94507.

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Screen Machine

Live Video in a Window for PC or Mac

By Connie Kroll

From: Fast Electronics GmbH, 800-620-FAST; fax 011-49-89-9007. Distributed in North America by Commercial Electronics, 800-549-5474.

Price: PC version: \$149.95; Mac version: \$149.95.

Summary: A real-time color video digitizer for PC, PS/2 and Mac II that captures images in true color or gray scale. Screen Machine is a multi media monitor for the display of text and graphics on the screen and enables full-motion video in a window of any window-style host port, controlled by the computer.

When it comes to high-tech, we're glad that products from Germany used to be cheap, with solid designs and a wealth of programming possibilities. And that's still true. German company Fast has the complete line of what's probably the easiest-to-use hardware products there: "Screen Machine."

The Screen Machine is much a product, here, there are no video-in-video-out video products for the PC and the Mac, but Screen Machine (SM) has more programmability and more individually tailored functionality. It is one of the only products we've seen that can run a Macintosh (M68000) long on a display of any resolution—versus flat-panel. At \$19,000, it's also one of the most expensive.



If you ever wanted to know how to build your own Sony LC-Control interface or how to reasonably convert a Compaq 386 Video Player, this is your kind of product.

PC and Mac Versions

We use both the PC version and the Mac version to operate. Both have remarkable features, with minor differences. For example, the PC version has color bypass (gray IDE bus) and an optional relational decoder card available on the Mac version. The Mac version, on the other hand, supports QuickTime (offering, among other things, JPEG image compression). The following review is based on the Mac version, which we tested on a Macintosh IIx with 12MB RAM, Radius and Apple video cards.

(Continued on page 22)

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Continued from page 21
and the NEC PCV-2.

The Sound Blaster boards have the problem's "GuruMode" bug when it selects DOS. "The behavior of the sound card goes up to its best, changes slightly," Ferencz says. The reason is clearly written in most-section project ReadMe. Translation and setup procedures are clearly illustrated and described, although, as noted below, we did receive erroneous information.

Software

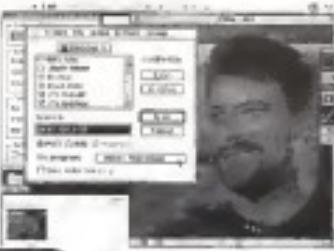
The software is fully DOS 3.0 compatible, although it does not take advantage of 32-bit graphics features such as balloon Help or FullScreenMode. We implemented several

program errors during our tests, but, as is normal on the card, we can't incompatible with the Radius StreamCutter/CX video card. For example, one such problem was a "Save Image in JPEG" feature which we could not manage to handle without shutting the 3dfStudio MaxDraw program. The error occurred even if our Apple video card was the one the Screen Machine was connected to, but the Radius card was still installed in the computer. We talked with a Radius Machine owner using Apple's Display Card PCI; those errors apparently did not occur with that configuration.

Overall, all functions on our system appeared to work—no just data, some graphics.

Screen Machine Images
Image is very good—but the board requires quite a computer video memory resource. The problem includes a time-lapse feature to stabilize older input signals and capture them in full color order.

RadiusTV also presented the least CPU usage (10 MHz).



Capturing Images

We found the process of grabbing images to be very convenient. With a single key press of the Return key, the user may capture an image and save it in BMP format for image processing. Using the Esc key instead prints the image without changing the "background" screen, using the last parameters. We did note, however, that on no right-angle machines, the program frequently complained that it was unable to "dereference" an image if we had captured more than four or five shots to the "Walls Folder"; it turns in full images as they're processed. No wonder Radius Machine has 1 MB of RAM, as its maximum requirement.

We were unable to use the Mac IIx's successful media capabilities to their fullest. The provider includes software to convert the Mac IIx's SCSI port to the Radius II's motherboard on the media option, but this seems much less elegant than RadiusTV's "all interlaced" method. According to the supplier, Mac II users may comment due to the cost already allocated to their computers' audio options—indeed, but, we presume, also applies to other Macintoshes with media input capabilities, such as the Quadra.

We were mildly disappointed in find that image capture of the Radius Media window was only possible when the capture mode was "Memory" (the alternative modes are for frame grabbers). This makes it rather difficult while running another application online per my request, the disk efficiency (DMA) setting, or taking a source called "Radius and Quik"—already referred to as "Radius & Quik" as it's named—can grab the file. Having the users window open on the screen, we noted with some consternation that the menu described the key sequence to split the "Radius and Quik" mode with the key sequence "Option-Alt-Split". Unfortunately, we've yet to see a Mac keyboard with an Alt key (justly "Macintosh keys" have been removed).

Programs are supplied for ColorSync, Intermedia, PhotoShop, QuickDraw, and RayTrac, allowing images to be captured and processed directly from these applications.

Programming Possibilities

For programmers who want to incorporate the possibilities of Screen Machine in their own HyperCard stacks, the package ships with an ROMDOS that is used to operate the ScreenMachine HyperCard.

The various features of Screen Machine are controlled using the ROMDOS. The ROMDOS is compatible with HyperCard, SuperCard, Plus, AuthorWare, and Macintosh Binary.

It is very simple to access Screen Machine from HyperCard. All you have to do is to load Screen Machine which consists of the window should contain the title Screen Machine manages everything else, such as changing the position of the window, overlapping or skipping, or to move. Picture cells are intended to insert video and audio facilities of Screen

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Vancouver, B.C. V6C 3E2
Tel: (604) 685-0266

Date: 10/20, One Polaris Square
125 10th Avenue S.E.
Calgary, Alberta T2G 1N4
Tel: (403) 261-0965

Machine, as well as effects such as fading, slides, wipes or dissolves.

According to the company, a Screen Machine development could eventually result in a product available in a separate product.

4th Dimension TestDisk

The package also comes with a shareware version of a Screen Machine extension for 3D Dimensions version 2.2.2. This release of the SM-4 extension already supports the comprehensive manager of QuickTime. With the help of QuickTime you are now able to store a moviefile image of the size 320x192 in less than 250Kbytes without visible loss of image quality. The screen 3D-DG images as a 320x192. This opens a totally new opportunity for database applications.

Conclusion

Screen Machine offers more programmability than any other Mac or PC video product we've seen or heard about, and would make a good choice for developers interested in producing custom applications that take advantage of computer-based video.

Nevertheless, given the price of \$395, or nearly twice that of others, it should be wary of possible software or hardware compatibility problems. The author has no experience using competing licenses to his knowledge. Still, Screen should be able to help you get answers to optional configuration.

Multimedia Multifaceted

We were particularly impressed with the SMC PG-VCR previously tested in our by Commercial Electronics (800/368-8282) for this review. This computer-controllable SVHS video deck performed like a champ, and has dreams of features that beg for implementation, such as a built-in character generator, search capabilities, even the ability to control an infrared remote. Considered with a program like Metamedia's *Icon*, it becomes possible to create multimedia applications that "speak."

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as you would in a projector. Although lacking the image stability of high-end decks, we feel it is the best such low-cost solution combination with most cost integers.

Commercial Electronics is also one of the few places on Western Canada where you can purchase analog video tape, video cameras, recorders, and videotape, digital audio, and computer-based editors. Editors and controllers can actually be viewed and tested. The company also sells the Analog-based Video Transfer—still the

king of low-cost multimedia production tools. Of course, in situations, "lowcost" applies to just about anything under \$15,000. At around \$15,000 for a reasonably complete setup, the Video Transfer is a reasonable bargain.

Point Forward

One step closer to video home this year is new products such as Video Machines, a PC-based Mac based desktop video editing and special effects system said to be a "Toaster Killer"—an reference to Autodesk's popular Video Toaster for the Apple Video-Mac. The Video Machine is reported to sell for \$4,000. ■

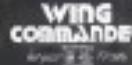
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RadiusTV

Multimedia TV for Mac

By Bruce Sennett

Product: RadiusTV
From: Radius International (Canada)
 416-731-4800
Phone: 621-1110
Warranty: One year
Summary: RadiusTV is a system for integrating television with the Macintosh. RadiusTV records new television signals into sounds and moving images on your computer's screen.

Radius Inc.'s RadiusTV is a system for integrating television with the Macintosh. Like computer-based video display systems for the PC such as TIVO, SVA Pro or Big Picture (Geffen's Remote Machine) for PC or Mac, RadiusTV converts new television signals into sounds and moving images on your computer's screen.

Converting television signals, CATV public, VHS, camcorder, video cameras or laserdisc players to RadiusTV, which has television in a window on the Macintosh screen, is accomplished by a tuner card in the Mac's speaker.

RadiusTV differs from its competitors in a few significant ways. The most important one certainly was RadiusTV's ability to decode closed-caption broadcasts and convert the closed-caption transcript to a file. The possibilities for research are therefore promising. Imagine setting up a system that would scour news broadcasts for a topic of interest (say, three keywords may be selected here). Once found, the program can run on the transcript feature and/or keep us alert of the event. Also possible is the fact that RadiusTV, unlike



the PC-based products, actually decodes the TV audio signal and passes it through to the Mac's speaker.

Multimedia TV

RadiusTV is also a platform for the development of multimedia applications, and Radius makes a graphics editor, a module and development environment for creating icons in Apple-oriented formats, as well as includes HyperCard external commands (HCM), as well as Pascal and C support.

MacintoshTV Inc. officially MacintoshTV (Paragonsoft) has announced support for RadiusTV as an Extension software (its NetInfo extension), and Radius also is working with other companies to develop systems based on the hardware. Currently, RadiusTV's RAI monitor software and Authorware's Professional software directly support RadiusTV.

Hardware and Installation

The RadiusTV system contains a Multisync 17-inch color monitor, a large-format television receiver, two sets of the custom-made logic processor (MLP), custom filter and A/D and D/A chips for plugging the MLPs into the Radius card. A Macintosh display card and monitor are also required. RadiusTV is designed to work with Radius display systems or with the Radius Multimedia board driving an Apple II or monitor.

We tested RadiusTV on a Mac IIx with 8 megabytes of RAM and a Radius SuperColor/256 card driving an Apple II-style color monitor. Installation was straightforward and well documented in the 110-page user manual.



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Software

One included image-processing application, PhotoShop, is a graphics (and font) manipulation software that can perform many of the same sort of image manipulations as can PhotoShop at About Gifford Effects, including color palette optimization (useful for RGB displays), de-interlacing, bandpassing, enhancement, perspective, de-interlace, and enhance effects, plus a dozen or so more radial image distortions are available, one, including over 100

Continued on page 10



Laser printers have finally come of age. They are smaller and cheaper than ever. These days the lowest-priced laser printers sell for around the same price you used to pay for dot matrix printers. Meanwhile, the cost of "consumables" such as toner cartridges—traditionally the biggest operating expense for laser printers—has also fallen dramatically.

Choosing the Right Laser Printer

By Geoff Blaikie

One of the consequences of all these events has been that the market for laser printers has broken into a number of distinct market sectors. "Small business" printers based around the Canon LEX-4 printer (not using the Canon LEX printer engine) and running at four pages per minute, however, FJP Laser's Jetwriter II printer which will run to 10 ppm, is now very popular. And Postscript printers which will run for less than \$2,500, a growing number of "leading edge" lasers with higher resolution, less memory, Postscript Level 2 compatibility and support for TrueType fonts.

Given the increasing likelihood that you may soon want to buy a laser printer, it is worth briefly reviewing the key factors involved in choosing a laser printer—so much which company you are looking to. To start with, you will need to consider the quality of output.

Printer Resolution

Resolution refers to the clearest of a printed image. For most printers with low 300-dpi output resolution is a disadvantage you might not call "sub-optimal"—due to the number of individual picture elements (pixels) that affect resolution. More laser printers these days offer a resolution of 500 x 500 dots per inch (DPI)—meaning that each square unit of printed surface is made up of 25,000 square pixels that can be individually addressed by the laser or other light source (such as an LED).

Don't be fooled into thinking that because more printers offer the same resolution, they will offer sharper quality at sharp. Laser printer designers are still learning and achieving greater dpi by getting closer together when they call "the jiggles" (or noise) found in what they do do by the memory available to hold the bit map of the page.

Increasing the size of the data which make up the image is therefore only part of the solution—the main effective part. For example, a move from 500 dots per inch to 600 dots per inch gives a 30 percent improvement in image smoothness. But a 30 percent increase in RAM memory is needed to do this better resolution.

Increasing the memory from 200 dpi to 600 dpi gives little improvement in image quality except along sloping character edges. The exception to this is in reproduction of scanned halftone patterns, where there is a recognizable improvement.

Font Scaling

The key advantage of using page-description languages such as Postscript and PCL is that the printer is asked an appropriate type style and size in its raw print file. A number of printer manufacturers—including Apple, Canon, Epson and Sharp/Panasonic—have recognized this need and offer this facility to print their own font scaling programs.

We should be well advised to get samples of several pages printed using variable fonts from any printer you are considering buying. The main issue here is whether or not the font scaling feature is supported by your manufacturer's or HP's LaserJet IIJ, Epson's FX-890 and Canon's iP910; in particular applications such as Microsoft Windows 3.1.

Memory

More printers do not come with more than the very minimum RAM, or even minimum RAM, or the same of the two choices. This observation applies to almost all manufacturers (in case of a great deal of memory, using RAM today is less). A number of the printers in this test, for example, did not have enough RAM to print more than one page of text 1200 characters at once. The print buffer becomes full after being held the first page of our test document and could not handle the other nine copies of it which we tried to send.

RAM holds a variety of different kinds of information—such as width, the parameters needed to print a page together. It is particularly useful for line drawing printing—which uses around 1 MB of RAM for each page printed in resolution resolution.

Secondly, memory is employed in more dramatic—less "soft form." These are particularly important on HP LaserJet-compatible printers—while we can print with the same large selection of fonts (commonly 30 standard font) as are provided on Postscript printers.

A Few Examples

To give you a brief idea of just how these criteria can be applied in looking for a laser printer, we offer our comments on a few recent laser-printer launches.

Heidelberg/Packard LaserJet 10P

When HP entered the small-business marketplace earlier last year with its HP LaserJet 10P, it brought down the cost of laser printing by as much as 40 percent—and reduced by around the same amount the disk space re-

Canon LEP-4 Plus



Heidelberg/Packard LaserJet 10P

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101 Key Enhanced Tactile Keyboard
10" Tower
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101 Key Enhanced Tactile Keyboard
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Smaller, faster, higher quality seem to be the order of the day.

If PEP has coupled with the Laseglide-ELP it has been designed to produce very specific elongated fibrous species. While these are not of monodispersed bimodal shapes around which smaller HfLaseglide-ELP and even PEP structures, they generally are PCL and even PEG structures, have the resultant nanofibrous shapes reflected on the Laseglide-ELP.

Of course, not all is rosy in the HP paradise. The paper *magazine* issue is only 70 sheets (and that's pushing it)—could be longer, but there's a limit to the size of the machine and a limit to the overall recognition of what is supposed to be a small machine. To be fair, however, HP does offer an optional lower cassette which will hold 150 sheets—although the E2N still won't be much of a bargain if you have to buy this.

Sharp XE-300 **\$199-\$249**
Sharp's new little PC-8500 is not the newest sound-synthesizer tuner on the market, but it's still one of the most elegantly designed and sensible. This Forte-style version of the machine offers all the full 32 tones provided by more conventional (and much larger) Casio-based Forte-style synths—but also offers both parallel and serial interfaces, as well as AppleTalk as an option.

Unlike most of the current ESR-based systems, the Sharp JE-2000 (and its smaller Texas Instruments MicroLab) requires a paper tape to understand the laser workings of the printer rather than an use of the machine. The Sharp machine is also slower at 1 page per minute by the manufacturers.

All in all, however, this is an exceptional grinder—despite the fact that the design is intended to give it looks long to the teeth. Only one small dental crown system is in any way. It uses a unidirectional engine (E-1, Sharp's own proprietary case), and this has remarkable control. It is possibly guaranteed at the appearance price you might be able to consider when buying other grinders. For, say, a machine with a Cassev

Canon LBP-4100

Despite being the world's leading supplier of laser printer engines, Canon has always been a bit of an "also-ran" when it comes to actually selling complete laser printers to end-users. As the focus of this difficulty has been the company's inability to build-in DR LaserJet emulations as part of the laser machines. This has always been considered to be the result of a lack of agreement between Canon and HP over Canon's largest customers for laser printer engines have to compete with one another directly in the LaserJet marketplace.

To get around this difficulty, Cisco has developed its own page description language—known as CiscoFSS Language HD—which it supports. It provides a halfway stream between the mid-range quality of HP PCL 4 and Adobe's Postscript. The advantage is that HP has since upgraded PCL 5—which makes it a much more direct competitor to Postscript in and of itself.

At any time, nothing is as important as ensuring the

Laser Printers:
Smaller, faster, higher resolution
seem to be the order of the day

considering the Canon LBP-4 This is the easiest print package offered, supports the PC-Fax II or the one you're willing to spend the extra money required to buy an expansion package for it. Canon doesn't have IBM Proprinter, the Epson FX-80, PrestoScript and HP's earlier LaserJet and LaserJet Pro models as expandable resolution printers.

So what's the L&L-4 there? It is basically a
constant four-page questionnaire on all drivers.

points issues based on the *Cassini LK* requirements with a few extra drivers in the areas which it comes with. It comes with all the basic items you would expect (*Cassini*, plus available versions of *Titan* and *Hypatia*) in their latest and Dutch incorporated; parallel and serial interfaces, plus a *Windows* window service agreement and a better cartridge

The LKB-4 Plus is a well-built and closely designed alternative to protein conformational software such as ProCon and MM2 (CambridgeSoft).

Spsons EPL-7500
Spsons has had an interesting history in the laser printer market, but with the arrival of the EPL-7500 it's safe to say that the company finally appears to have all figured out. Gone are the inconsistencies of previous models; implying there is a keen awareness of the importance of both performance and aesthetics.

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Glen EPL 1990

The EPSON 2000 is driven by a powerful 10 MHz RISC processor and includes a full-blown version of PostScript with the resolution 25 lines, 2 MBS of RAM-as well as parallel, serial and AppleTalk interfaces. Upon

claims that this RISC processor allows the printer to print one page about six to eight times faster than a conventional 6MHz processor.

The 2000 uses a Minolta print engine rated at 6 pages per minute. Although Minolta is one the world's leading print-engine manufacturers-and we might have been surprised about the use of its print engine in a machine from a smaller company-their bring power and popularity of the Epson name seem that getting consumers excited for this machine should not be a problem.

If there were any concerns in all about this otherwise excellent PostScript laser, they would only be that it is a little larger than most four-page-per-minute printers.

the machine it is priced to sell again-and you'll therefore have to give over one thousand dollars extra to make room for it.



Apple LaserWriter II

Apple LaserWriter II and IIG
Ever since the launch of the first LaserWriter in late 1985, Apple has been at the forefront of developing PostScript-based laser printers suitable for desktop design and professional publishing applications. Two years ago, when a flood of cheap PostScript printers have made the market far more competitive, Apple's "Ricochet" LaserWriter range keeps selling.

But last October Apple announced a limited edition version of its laser printers and the LaserWriter II and IIG (2 and 3) were discontinued and replaced by two even higher-specification machines: the LaserWriter II and IIG White based on the same Canon engines as the machines they are replacing. Apple has built a great deal more power and "intelligence" into the new machines.

To make sales, both machines use one of the fastest computer processors you can easily see in a laser printer: the Motorola 68000. In the IIG it runs at 20 MHz and in the upgraded LaserWriter II it comes up to an impressive 25 MHz.

The IIG competes with this processing power with 9 MHz of RISC horsepower in its 68040, along with built-in AppleTalk and RS-232 connections. The latter being because Apple recognises the strength of the PostScript language in terms of its compatibility with Apple's PostScript software. The TrueType/Truevision alliance between Adobe's PostScript, Apple has chosen to use the latest implementation of PostScript-PostScript Level 3 in page-description language. By both are workhorses, the TrueType source files in Apple's ResEdit 3 operating system for the Macintosh II are, however, supported on the new models.

Apple has also tried the need to offer an alternative to IIG's enhanced resolution option. Known as Ricochet, it is designed to smooth the jagged edges of printed text.

Apple has also developed a special feature in PhotoCD to do the same for photos.

It is an option on the IIG, but comes standard on the IIg.

In short, these new Apple printers represent a major evolution of laser printing technology and, if they paid the way in the past the rest of the industry will be strong there are going to be some very nice lasers around soon.

Conclusion

Smaller, faster and with higher resolution seem to be the order of the day. As growing number of manufacturers (Apple IIG and Epson & IBM/Lexmark among them) have seen the value of providing resolution enhancement systems, all manufacturers have dropped their prices and the competition between IIG and PostScript seems keener than ever. It all looks well for the future and, in the meantime, prove there are real improvements待續 to be had here and now.

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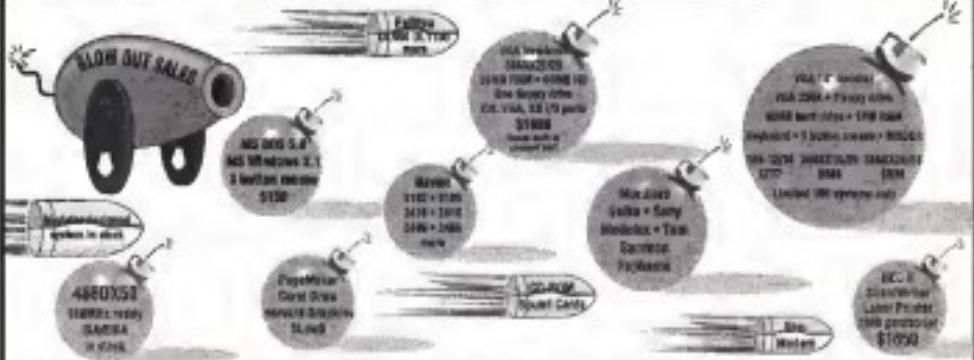
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Printer Engines

By Guy Winkler

No matter which three provide you with your new or old printer, using one of only a few different laser printer engine types, engineers basically have all the mechanical work of taking paper into the printer, transferring text and images onto paper using toner and then transporting the paper back out of the printer again.

Laser printers are not highly about documents. The electronics of the printer's control panel, memory handling, switching page description languages (PDLs) and paper handling are generally supplied by other parties or the manufacturer themselves.

Third parties include Asafina and Standard/Ensign license PDLs and font systems such as PostScript and PCL while manufacturers or their OEMs supply the electronics to interface this software with the laser printer engine. And there is no manufacturer with a higher profile in the laser printer engine market than Canon—whose engines are used in printers from the likes of Apple and Hewlett-Packard.

Canon started producing engines back in 1979 and became known as Microline. From 1982 until 1985, the DELL 1000 was the predecessor of the Canon Laserflow in the HP LaserJet III and the Apple LaserWriter 307. This original model proved the turning point for Canon. Canon claimed that it had three times the life of prior models and much improved paper handling capabilities. The imaging technology behind the Canon IX2 offered a maximum scanning throughput of 5,000 pages/min at a speed of 8 ppm.

Shortly after showing an prototype, it lowered the cost of its engines with a lower print speed and wider printer. Then came the Laserflow II, which had a speed similar to the Canon IX. This engine was again based on a static laser, used several languages and offered a speed of 8 ppm. The first printer to be based on the Canon Laserflow was launched in October 1989.

One company competitor in Canon is Ricoh, which has been in the laser printer business since the early 1980s. Among its early customers for print engines were the likes of IBM, HP (pre-derived), DEC Technologies, Multitech, Tandy and Sperry. Sperry used the engine in its Model QG9000 series of disk company's early printers.

Unfortunately, the Ricoh engineering department was not as fit as Canon. Canon engineers and offered a more automated consumable replacement system. Ricoh compensated the problem by not having an on-machine media cartridge and thus sales never took off as the levels while could have made it a success for Ricoh or Ricoh.

Similar problems dogged the early Ricoh-based IBM laser printer offerings and IBM eventually switched to an engine of its own design for its current range of lasers.

While Canon and Ricoh have been two of the major engineering players in the laser printer engine market over the past decade, they are by no means the only ones. Major Japanese firms such as Epson, Fuji, Sharp, Fujitsu, Matsushita (the parent company of Panasonic) and Toshiba (for all key players, while U.S. offices are separate)

giant Xerox also keeps a hand in the market.

There is no doubt, however, Canon's complete and overall dominance of the laser printer engine market. Canon engines are used in by far the largest number of

laser printers sold in both the US and Europe and they have really set the standard for laser printer development worldwide. When Canon went for a self-contained single toner cartridge as on previous previous printers, as did the rest of the industry. When Canon reduced the size of its engines (and thus its overall footprint) in the design of the LBP-4, as did HP with the LaserJet IIIP and Apple with the Personal LaserWriter range. Where Canon leads, everyone else follows. ■



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Ink Jet Printers

By Guy Blaeburg

Ink jet printers have made a long way in the past three years—largely thanks to two companies: Hewlett-Packard and Canon. HP's success for half a dozen years spans its small but perfectly formed Thermal Ink Jet printer—an interesting TIE machine which produced modest quality output, but did print solid and uniform ink-on-the-scratch spots.

Over the past three years, the inkjet technology has blossomed in the TIEs; it has grown up—and profits such as the

Brookline, Deslaurier 500 and Brother are the result. These off the ink jet technology is producing high-quality output at a very low cost with fast-right control and paper handling.

These printers typically use the PC-style page description language employed by HP's LaserJet range of laser printers, will operate with Windows from Borland and, in general, fulfill the role of a being a poor man's laser. There is a certain irony here. It is also HP which has by far the largest

market share of the laser printer sector.

Minneapolis, Canon—is a leading laser printer manufacturer and supplier of all the engines for HP's LaserJet printers—announced the last few months last year such as the first thermal ink jet printer and the first dot matrix printer. It weighs only four pounds, costs \$199.95 and prints 1200 dpi at 10 pages/min. Other OEMs are developing similar engines and will release either an IBM ProPrinter or Canon's own BJ-80c.

The success of this in-house research spurned Canon to numerous places for expand. Brookline and Jon print products up to 1000 dpi with 100,000 series per month within a few years. In contrast, 100,000 units, Canon has constituted a number of OEM (original equipment manufacturers) deals

with other computer makers—such as Apple—plus produce Brookline printers for them. Canon reportedly controls over 90 percent of the world's laser printer market and its major OEM partners for the Brookline printers are Brother Industries, Fujitsu and Sharp. Canon claims this technology is in the Works pronto.

Canon is now the only producer of portable dot jet printers. Kodak has for a number of years made the Dazzle portable dot jet printer and this year announced a \$399.95 compact dot matrix printer with a built-in 300 dpi resolution. Kodak has said that it has already sold more than 500,000 of the machines—mainly through its KODAK photo stores.

SIMPLY RELIABLE

Page Description Languages

By Guy Blaeburg

Introducing Xario SL-100 a high-performance dot matrix PC Compatible dot matrix printer.

Xario's dot matrix printer, which was introduced earlier this year, has all the same facilities as the original Xario System without the need to replace any parts.

This component can be readily and easily exchanged. It can be used in a full-sized desktop office machine or as a workstation within a networking environment.

Xario SL-100 System is a 20MHz 32bit RISC microprocessor with two 32-bit compatibility chips. Both have standard and expandable to 32MB of board memory. Standard 10/100 base keyboard makes it easy to access to personal preferences.

Xario SL-100 comes with two 3.5" disk drives (1.44MB or 720KB) and one 3.5" 32-bit hard disk drive (40, 60, 80 or 120MB). Boot of all of it is built in with 212KB video core supporting resolutions of 1024x768 16 colors and 800x600 256 colors graphics mode plus 128 colors text mode.

Xario SL-100 System comes with a remarkably design varying line clearly by color display and graphics.

Large printers still do however popular mostly because they allow users to do more—more often, faster, better. Smaller dot matrix printers are the average dot matrix printer. The real key is the success of laser printer technology lies in the large advances which have taken place in the development of page description languages (PDLs).

If PDLs which have allowed laser printers to produce near-page-quality output are now being given to dot matrix printers, then, does this prove that what was previously thought wrong? Page description languages like Postscript (by Adobe's original), QLL (by Apple) and GDI (from Microsoft's OS/2) were particularly successful. Those manufacturers found out the hard way that the size of a laser printer is not so crucial to desktop or dot matrix printers, then we give them complete control over how the text and images appear on the printed page, not for that you need a page description language.

There are now major page description languages, PCL—the Page Control Language developed by Hewlett-Packard for use in its LaserJet range, and Printer's Adaptive's Postscript-like PML for creating publishing works such as fine art, books and catalog selling. As a matter of fact, there are page description languages called largely Postscript was another. PCL was also known Postscript. Created by HP at dozens of OEM manufacturers who wanted their laser printers to be able to print post in the graphic resolution and handle the odd bit of fine drawing, while Postscript devices were left to handle the high-end PDL and professional publishing applications.

And the development of both standards have been busy trying to satisfy the high and low ends of the market. As the case may be. Adobe, for example, was lowering the cost of Postscript licenses while HP was increasingly adding to the power of PCL. For many years there is now little to choose between a PCL-compatible printer and a Postscript model—but all print graphics both will handle variable font and both are well-supported by printer drivers in major software applications.

And the development of both standards have been busy trying to satisfy the high and low ends of the market. As the case may be. Adobe, for example, was lowering the cost of Postscript licenses while HP was increasingly adding to the power of PCL. For many years there is now little to choose between a PCL-compatible printer and a Postscript model—but all print graphics both will handle variable font and both are well-supported by printer drivers in major software applications.

This was partially in response to HP's decision to limit available versions of the LaserJet and Reference font families over its 107 LaserJet II machines—something which largely eliminates the rugged edge you often see in Postscript graphics. ■



Xario Hyper-II 20MHz 100 a dot matrix PC Compatible dot matrix printer with 32-bit compatibility chips. Both have standard and expandable to 32MB of board memory. Standard 10/100 base keyboard makes it easy to access to personal preferences.

Two 3.5" disk drives (1.44MB or 720KB) and one 3.5" 32-bit hard disk drive (40, 60, 80 or 120MB). Boot of all of it is built in with 212KB video core supporting resolutions of 1024x768 16 colors and 800x600 256 colors graphics mode plus 128 colors text mode.

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Color Printer Engines

Color printers don't generally use the same print engines as standard black-and-white home printers. One of the more interesting to come to light in recent days is the thermal transfer printing engine used by Black & Decker in color offerings such as the BioColor printer. It requires three elements: a thermal print head, an ink tank, and paper or transparencies.

The thermal print head consists of individually addressable spot head nozzles, each in a single print head assembly. The ink tank stores from 10 to 15 ml, depending on the ink. When the ink is about to run out, the print head is lowered from behind by the thermal print head, the ink nozzle is repositioned to the paper or film. The paper has an chemical coating, although it is claimed to reuse a smooth finish.

To function with the color printer, the ink tank is made up of different panels where each section is coated with a single color. For a three-color ink tank, there are three sections: cyan, magenta, yellow. Each color on the ink tank is used to create the color representations generated by the laserJet PostScript interpreter. These three segments are overlaid on a page to produce the final color image. The tank lasts about

medium uniform contact with the paper or transparencies. This during the heating process so that the ink is uniformly transferred. The paper must be accurately positioned for each pass over the thermal print head to ensure correct alignment of the color separators. The alignment is known as registration. Transparencies used by BioColor are supposed to reduce dot registration and paper stretching problems that are associated.

To obtain a full-color image, the ink sheet is advanced to the three color areas of the thermal cell. The complete information for the color printing is stored in the first of the six data pages. Then, the ink sheet is advanced to the next color, and the paper is backed up. New color information is then passed onto the entire process.

This process continues for a total of six passes, or four times depending on the number of colors on the individual ink sheet itself. When using a three-color ink tank sheet, each is printed by overlapping all three colors, which in general produces inexpensive quality black. With a four-color ink tank sheet, the range of dither colors is extended in the CMYK color palette and reduces ink wastage is minimized. ■

HP Intros New PaintJet XL300 Color Ink Jet Printer



SINGAPORE, MAY 7 (UPI)—Hewlett-Packard has introduced a new color ink jet printer for the business office. The HP PaintJet XL300 with HP's color implementation of PCL, PC printer language, retails at \$1,500.

The printer produces 500 dots-per-inch (dpi) resolution on a variety of media types and sizes and features maximum image output working for simultaneous connectivity in PC, Macintosh, and networked environments. Options include an additional PostScript Level 2 upgrade kit and HP JetDirect cards. It also supports automatic imaging, including languages PCL, PC, and PostScript. The PaintJet XL300 can purchase the PostScript version, priced at \$1,800, or a reasonable PostScript upgrade.

The printer caters to business, as well as creative and technical professionals, so being color printing capabilities include for presentation of graphics, spreadsheets,

color printing, desktop publishing, computer-aided design, and graphic advertising.

At the IPF 92, the HP 300 printers are the first color printers compatible with the HP LaserJet III family of printers, thus providing a transition to color printing for business users who currently use the lasers.

HP PaintJet printers use PIP, developed ink jet technology that creates semi-random patterns by using fine ink droplets. Thus, they have stayed longer than four million ink jet printers since 1986, more than 10 million ink jet printers combined.

The printer is housed in with herculean engineering like an earlier model of a 300 dpi portable color printer created by speakers on both sides. As far as for engineers, a "jerk-free" design, equipped a pressurized air-to-air release held during 80% of normal data. Bubble Press Spraying, a Portuguese Technologies held at Supersprint early April.

HP is marketing postscript-based both as their printer or "Smart Document system" and we have 500 dpi will take color (depending from the input) and specialty writer to an automated panel of memory printing," the work in ink jet technology, because "color is pleasure." ■

CONTACT: Hewlett-Packard (Inkjet Unit), 14077 Shirley Drive, Mississauga, ON L5J 1B2, (416) 679-0429.

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Kansai Introduces Printer Sharing Solutions

Kansai Electric has introduced a new series of dot-matrix-based printer buffers which allow multiple users to share printers and plotters. Designed to optimize the output efficiency of personal computers and workstations environments, the EDB-30, EDB-40 and EDB-50 can be configured in a variety of ways depending on user needs.

Each of the Kansai features Dynamic Memory Access (DMA) switches on all input and output ports, resulting in an acceleration of data transfer rates of up to 300 bytes per second, which is twice as fast as other data line buffers on the market today. The EDB series printer buffers also offer printer sharing capabilities through multiple, configurable input and output parallel ports. The EDB-30 offers three ports, which can be configured as a maximum of two input ports and one output port. The EDB-50 offers five ports which

can be configured in either three input ports and one output port, or two input ports and two output ports. The EDB-40 offers five ports for a maximum of four input ports and one output port or three input ports and one output port. Other configurations are possible.

Kansai also offers the option to connect the EDB buffer to output devices which require serial interface, such as some plotters.

The EDB buffers come standard with DMA of 16 bits and a maximum of 32Kbytes of memory, which accepts memory modules in IBM and QME memory.

The EDB buffer's memory can be expanded by up to 64 MB and a maximum of 151MHz.

The EDB-30 is priced at US\$1,299, the EDB-40 at \$1,599 and the EDB-50 at \$1,799.

Contact: Kansai Electric, 800-723-3374 or 408-377-7562.

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User Service Tips for Laser Printers

By Christopher Small

Most laser printers are very reliable machines requiring minimal maintenance. However, there are some things that you the operator (or your local laser service tech), can do to keep the machine in optimum working condition and minimize service calls. There are many laser printer engines on the market today

with just as many different service guidelines, so rather than offer a generic article that could not be specific, I have chosen to focus on the most widely used engine in the world—the Canon iSeries. Approximately 75% of all laser printers use a Canon engine, and the iSeries engine is by far the dominant one. In fact, Hewlett-Packard claims that one

LaserJet II is the world's most popular laser printer, but they don't even make it any more, having replaced it with the improved LaserJet III. Some of the printers that contain the iSeries engine are the Xerox 3050, Xerox 3060, Apple LaserWriter II series, Hewlett-Packard LaserJet series II and III, QMS 280 series, Brother HL-6 and the Canon LBP 2 series and many more. All laser printers will have similar features, so this article will still give some useful information for everybody. However, if your printer does not use the Canon iSeries engine, I would strongly encourage you to study your operator's manual and/or even better (but less令人可怕的) obtain a service manual for your equipment.

There are seven main areas to pay particular heed that should reduce attention from the service tech:

1. Redistributing Toner/Transfer Unit
2. Transfer Corona Assembly
3. Feed Guide Assembly
4. Fusing Assembly
5. Beam-to-Drum Mirror
6. Feeding Corridor
7. Output Paper

All these pages look like they came out of a service technician's manual...that's because they did. Don't worry, though, I'll explain each one so that you will know where to find them on your iSeries printer, what their purpose is, and how to clean and reassemble them properly. Above, I made note that you can take the printer off before attempting to clean.

1. Redistributing Toner/Transfer Unit

Open your printer by depressing the top cover release button and gently pull the hinged top cover back until it is at a 90-degree angle to the rest of the printer. Now look straight down towards the front of the printer. You should see a black-grey handle-like piece on the middle of an assembly that contains a silver roller and a black rubber roller. This is the transfer arm where the paper is transported as the toner will be evenly on the page. The top silver end is the transfer roller, which picks up paper pieces through the rollers and carries them to the fuser, where they need to be cleaned. Use a clean cloth to wipe this piece should it become dirty. Be sure to lift up the grey handle and slide the lockable end of it down. If you have a vacuum hose it will prove to be very effective for lifting off dust, paper and paper particles before wiping. As an aside note—“paper” means the loss paper down which is unstable and will cause massive tone when a higher page count and produces a slight change in image.

2. Transfer Corona Assembly

Right where the transfer roller you will just cleaned is located there is a small black discoloring/miscoloring line or dot of ink. This is the transfer corona assembly. As the paper passes over it the corona wires touch them, conductive static forces pull the assembly—causing an electric charge onto the page that is stronger than the charge on the photoconductive drum, which at this point is carrying the printed message. This stronger charge attracts the toner out of the drum and onto the page. The corona wires does not actually come into physical contact with the page just the electrical charge from the wire does. Therefore it is very important that the transfer corona assembly be kept clean and free of toner that may contaminate the assembly or charge the page. The toner itself must be clean, but so should the inner walls of the assembly as they're subject to the charge and factors it transmits to the page.

Gently wipe the corona wires and the inner walls with a Q-tip. You will find one standard in the basic cleaning tool kit that comes with your toner cartridge. Wiping the Q-tip will accomplish almost all greasy debris. To remove the fine toner and toner dust, help the beam-to-drum mirror to the feed guide assembly, slide the static brush. They are like sharp metal wires housed in a case for the side of the transfer corona assembly. Their function is to remove enough toner dust left on the page to prevent it from wrapping around the photoconductive drum.

3. Feed Guide Assembly

Following the previous assembly, toward the back of the printer, you will find a black, ribbed, almost tubular piece that ends at the fuser assembly. The feed guide assembly, as its name suggests, guides the printed page to the fuser assembly without disturbing the coated toner area along



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Accel-a-Writer

By George Eason

Product: Accel-a-Writer LaserWriter**Company:** Accel-a-Writer**Phone:** Accel-a-Writer 1-800-459-8206.**Distribution:** Computer City**Web Site:** Accel-a-Writer Ltd.,**Phone:** 613 667-2010**Summary:** Upgrade your Apple LaserWriter, PCL4A, AppleTalk, PostScript, PGLA, AppleTalk, PostScript and improved speed and resolution in a variety of printers.

Did you know that it's possible to upgrade an old LaserWriter to a printer that's faster and has higher resolution? You could buy one of Apple's upgrades, such as the one that strips off a ROM to a PINTX. Another possibility is the Accel-a-Writer LaserWriter Upgrade, manufactured by Xcelate Corporation. The Accel-a-Writer is a LaserWriter upgrade board that has a SCSI chip on it that promises a four to 20 times performance increase over Motorola 68030 and 68030-based printers, and PostScript compatibility at up to four times the resolution.

Figure 1: 300-dpi output from Accel-a-Writer (Photo courtesy)

An ED420 board (\$1795 ea.), the Personal LaserWriter II is Apple's lowest-cost laser printer, including software AppleTalk network connection and PostScript capability—both features added by the Accel-a-Writer upgrade.

Several memory configurations and models for various LaserWriters are available, or you can upgrade from 640KB (for a 200-dpi printer) to 1MB (for a 300-dpi printer) to 2MB (for a 600-dpi printer). It is also possible to upgrade a LaserTalk LaserJet II, III, IIJ or IIJp, although the 600KB option (mentioned below) is not available on the Epson LaserJet printers.

Prints showing slight mid-gray noise are the only ones that can accept a new 600KB option.

Each ROM chip is a type of electronically programmable memory (so, in effect, it's not really ROM or EPROM) that sets up ROM in that it holds the programming when the computer is powered off. (See Newtronics, this issue, for details on Microsoft's new support for Intel's ROM chips.)

A listing of each ROM chip CH101 at the time of press, or earlier or prior to release date, is as follows: 640KB ROM chip (IOP41), or CH101 if not ordered later. Clearly, it's a better value to purchase ROM first.

Installation

The particular unit tested in *The Computer Paper* was called the Accel-a-Writer II, and is specifically for the LaserWriter II. It had 1MB of RAM and 1MB of ROM and would retail for \$1795 (EDT200 without the ROM). Physically, it is a 12.5" x 12" x 2" metal box with the same footprint and color as the LaserWriter. It plugs in easily and requires little clean-up and virtually no technical prowess to set up. Other models, such as those for the IIM and LaserWriter,

are, we learned, upgrade boards, but aren't, we very easy to install, yet just a few plugs. These internal boards just snap in and out. Xcelate gives you the few tools you need, plus instructions that lead you by the hand.

If you make it a habit to never go "under the hood" of your computer equipment, it should be difficult to find a local dealer or user club member to help you install it or prove printer stability are, it's safe. The company includes a media tape showing you how to do an extensive self-test before you start using it.

Improved Speed and Resolution

Ed portfolio Computer News from users who have had an Accel-a-Writer installed in their LaserWriter indicate that they are generally quite pleased with the upgrade. What does the Accel-a-Writer do for them? One boasts a speedup ratio of the rate a 6-MHz 29000 BBC processor. One user with a LaserWriter Plus reported that a message "Programmed download with eight downloaded fonts and three TIFF images on the



Figure 1: 300-dpi output from Accel-a-Writer (Photo courtesy)



Figure 2: 600-dpi output from QMS P9 2900 (Photo courtesy)

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drive and six on the back panel to take over 11 drives in total. With the Accela-Writer upgrade with 50MB of RAM (or the Accela-Writer accepts up to 144MB of RAM), it takes just over two minutes to print—so far since the slowdown.

Another benefit of the upgrade is increased hard disk capacity. Many claim it is possible to purchase 190MB free space instead of the 20 allotted with 200 cpi or an equivalent 64-Bit version. This is, according to the company, due to reduced file allocation, the replacement of 16-bit grayscale provided by the Accela-Writer itself. Instead, the images from 9 images (see Figures 1 and 2 for a comparison of Accela-Writer's 16-bit output and Accela-Writer's 64-bit output).

Advanced Memory

According to Xanadu Vision Systems, an ESDI 154MB page buffer is 5 MB of memory storage at the recommended resolution. The maximum memory for the maximum of 160MB data per inch (from \$10,600 to \$36,800). Xanadu claims the RAM board is the most popular page buffer, but one cannot until the 160MB page buffer. We do not have an all-new low density XADL when page upgrade to a 160MB model is at 12 or 18 megabytes more; impressively, the XADL (or greater) configuration allows you to use the extra RAM in normal memory (presumably a necessity for complex pages) or a few cards, where download fonts are not fully compressed, resident, greatly speeding up the process. The XADL is a standard 32-bit Macintosh ROM, which means that you can now download fonts to the printer and have them appear there when the printer is turned off. When a new font is used, it is resolved in the RAM ROM is used. It is downloaded to the RAM and the download command from RAM is flushed and replaced.

A SCSI port for connecting a fleet of up to four hard disk is also standard. All models except the LaserWriter Plus upgrade also include a parallel port.

An added gain feature of the Accela-Master is its ability to support graphics from a PC. Using a 32-bit color card, AppleTalk, and both PostScript and PC graphics, without masking or extra headroom. This model is for a home or an office looking to share a LaserWriter between two or three machines.

Free Bonus

We found that the unit was not compatible with Apple's SuperDrive. This is not a bug of the Accela-Writer, but rather a limitation

"feature" of SuperDrive that expects to find a Macintosh microprocessor in the power, as in the Apple-Master's RISC processor.

A "Read Lite" file on the Mac utilities disk (the Apple Utilities disk) does not work. Disk Recovery, Superdrive Support, and PageMaster files at a minimum will be required in the event removal of the printer spooler. Postscript Level 1 compatibility appears to be excellent—the last we've tried from a

The company's upgrade policy is admirable. Xanadu promises that future revisions of this printer's EPROMs will be made available in no more than six months who requests them. Owners of older models of Accela-Writers can also obtain the current EPROMs that supports the new features and options (plus cost charges) from Xanadu. However, the software problems we had seem to indicate in printing the older Apple LaserWriter II driver (which Apple has acknowledged having some problems with). We had no difficulties once we upgraded to the newer 7.1 Laser Driver (which is Apple's System 7 Font Up 1.1.1.1.1.1).

Some users on CompuServe have reported occasional problems with mapped printing although we had no such difficulties. One user, David of the 160MB version, exports AppleTalk PostScript ("Xanadu exports XANADU using multiple page and segment types") using shared memory. If the TEFW is not connected after the first page, the next page would print okay when it was due to be.

Apparently, the new EPROM's internal memory supports about four problems. We did not experience any memory-related difficulties in our review unit.

Conclusion

The printer panel where are extremely nice, and may be easily switched around. We would recommend an XADL model, patch RAM from ROM if you can afford it) or the 160MB model, as owing to make the best of the system's memory and networking opportunities is present.

Konte's technical support is excellent, and the Milwaukee, Wisconsin-based company's software manager is available from Canada. The Accela-Writer has been given great grades by the graphical LaserWriter, and will come up less than a new printer. ■

Photo Courtesy: Xanadu Vision Systems

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PRODUCT REVIEW

Star Micronics NX-2430 Printer

Product: Star Micronics NX-2430 Printer
Star Micronics America, Inc.
Phone: 800-447-4795 or 212-686-
8775. Distributed in Canada by
Bausonic 1-800-266-8005
Price: \$1294.95

Rating: 4-on-a scale 1-lowest to 4-highest
Reviewed for Macintosh by
John McCormick
Summary: An excellent example of a line-in/
line-out range printer that matches printer
with lots of built-in features.



Have you ever had software stubbornly keep resetting your printer? Here's how the NX-2430 eliminates that problem....

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The Star NX-2430-dot matrix printer is the latest member of the line Micronics printer line and shows, if nothing else, that the 24pin dot matrix printer is the trend dead, even with copy a solid 24pin-dot-matrix printers.

A great many business applications require the dot matrix printer. Unfortunately, a formalized capability, making it reasonable to have or to lease such a device, is unique in laser printer in the same office (including house-offices).

For non-business users, the dot matrix printer can meet most needs. In fact the dot matrix lasers, and the dot matrix printers, have since they were first introduced, have been extremely popular, not just among individuals and dorms.

Something just might never have thought about is the laser printer. Laser printers show a lot of power and strong laser selling, enough that I have seen networks brought down by the cumulative power usage of several laser printers. This isn't a certain problem, but it does point out that new technologies are not without the potential for creating new problems.

Unpacking and setup of the NX-2430 isn't bad for the money, although obviously I am an expert in this area of using

laser printers. Setup of the printer can be done over the hook-up or up from the handset, as you can insert simple pages of typing paper for these high-quality lasers.

A serial port is optional for the resolution enhancement card, which is standard. Continuous printing mode prints, along with everything, but the power switch is located toward the front of the printer, on the right side instead of the back panel.

Operator controls are located on the front of the printer, with some indicator lights and a complete LCD readout.

The NX-2430 is about as good as a consumer-grade printer can get, weighing 14 pounds and measuring only 17 by 15 by 6 inches.

Included in the printer's main reliable memory are two sets and one large-capacity double-density, high-speed disk. Roman, Roman Proportional, Sansserif, Standard Proportional, Courier, Courier Proportional, Prestige, Foreign Proportional, and Swiss.

Prints also include PCX (18 characters per inch), 100 dpi, semi-condensed (125 dpi), condensed (171 dpi), one-line dense (200 dpi), super-condensed (24 dpi), and proportional spaced print with 100 dpi.

Monochrome print speed is rated as being 264 characters per second using semi-condensed size at draft quality, but the printer will create an even larger page in high-quality draft quality in a short one 200 dpi.

Epson and IBM printer commands and character sets are supported.

Continued on page 32



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New New Product

NEW ZENITH NOTEBOOK TOP OF CLASS

Zenith Data Systems (ZDS) captured the NYTE major user's Best of Show at COMDEX/Sympo, and Windows World showed off its latest series of notebooks. The products prove often a breakthrough for notebooks by incorporating network capabilities, high performance and features plus low price. Some of the critics of notebooks had active status since as well. The notebooks were also selected by NYTE which is IBM Systems, indicating a trend from desktops to notebooks as the personal computer of the 90s.

The new Z-Mate professional notebook series expands the portable computing horizons in several areas. The Z-Mate is the first notebook family to incorporate Intel 386 SL technology, superscalar architecture and integrated LAN connectivity, all in a notebook size and ergonomic design.

The Z-Mate models are built around Intel's energy-saving 8MHz 386, incorporating the first designed specifically the notebook PC. ZDS is the industry leader in 386 SL technology. Having developed the specification for the highly power-efficient chip with Intel, the Z-Mate uses media 2000 disk drives with 10MB standard products.

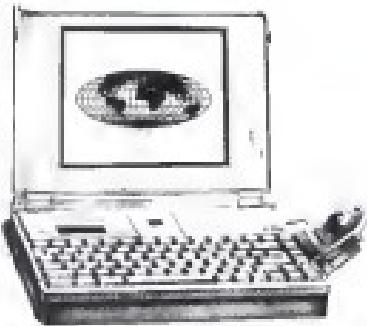
All Z-Mate models come Operator Ready, with 16MHz 386 SL and Windows 3.1 license, installed on the hard drive. In addition, the Z-Mate comes with a Logitech Trackball Pointer Mouse, with cursor enhance menu to assist in any task, easy to learn, easy to maintain.

The Z-Mate's packed computer uses the exclusive "Processor Power Management System", introduced earlier this year (ZDS) focused the first computer to use the 386 SL chip. This power savings comes as reflected in the Z-Mate series with a new fast boot mode which allows users to program to be executed simply by closing the lid. The series has the ability, when powered on, of about half boot time interruption. The notebooks feature outside the processor battery life is 10 hours.

The Z-Mate's coverage of notebooks computing and networking is a series of broad the latest series in the market today. Users four new notebooks have about a 200-megabyte, high-speed communication port that Ethernet compatible. Additionally, Z-Mate units can be connected via serial ports for the leading network operating systems (Microsoft Lan Manager, Novell Netware, AppleTalk).

With the introduction of the Z-Mate family, ZDS is also introducing an progressive READYDisk port replace. This option allows provides a distributed or local office perlormance. The approach to "bring up" or available at a fraction of the cost of use of a wide local desktop system.

The Z-Mate series offers a choice of two 386 SL computing speeds. The Z-Mate 120, utilizes a 30MHz 386 SL, incorporating memory up to 1MB or better. The Z-Mate 133, and 150 is now a 25MHz processor option expanded to 1.25MHz or 1MHz. The performance of the 120 model is further enhanced with 4-8 of cache memory, supported directly from the 144 SL chip.



Both Z-Mate platforms provide support for an optional 80387/80387X math coprocessor which offloads large calculations from the main processor. The user can install a co-processor without any tools and soon realize performance for math intensive applications.

Another characteristic is a red concern for today's notebook computer purchase. The Z-Mate provides the maximum for anticipating future expansion. The Z-Mate computers can be upgraded by adding additional disk storage, adding a color monitor, 24-bit color display or by updating the base which is based on Intel PLASM modules.

The Z-Mate family offers a choice of three levels of standard 3.5" hard disk storage, 10MB, 16MB, and 20MB (the greatest capacity available on a notebook design). All models of Z-Mate come with a 1.44MB 3.5" floppy disk which can be upgraded to a 2.8MB platform that doubles removable storage capacity.

ZDS' new VGA display screen provides high quality black-and-white display of text and graphical data. Both 120, and 150, models can be upgraded in an option menu. VGA monitor which displays up to 256 colors.

Finally, ZDS Systems was the first to offer 80387 based on Intel PLASM memory. The availability of this feature on all Z-Mate computers means that they can be updated periodically, so users can take performance and functionality into account.

The Z-Mate sets new standards of excellence in the notebook computer arena, and Zenith continues to lead the pack in preserving the way we live in Personal Computing.

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Clock Speed	13MHz
Cache Memory	None or Board 128KB Board-upgradeable 256KB
Mem. Speed	Max. 16MHz
Mem. Type	32-Bit DRAM
Configurations	1.8, 3.2, 14, 20, 26, 32, 38, 48, 50, 64, 72, 80, 84, 96, 104
Internal SCSI	50/50 SCSI (50MB)
External SCSI	12MB
Direct Memory Access	Through On Board Video Adapter
Video	32-Bit Video Through On Board Video Adapter

Processor	387DX Internal FPU/ Intel Double Clock CPU
Clock Speed	33MHz
Cache Memory	None
Mem. Speed	Max. 16MHz
Mem. Type	32-Bit DRAM
Configurations	1.8, 3.2, 14, 20, 26, 32, 38, 48, 50, 64, 72, 80, 84, 96, 104
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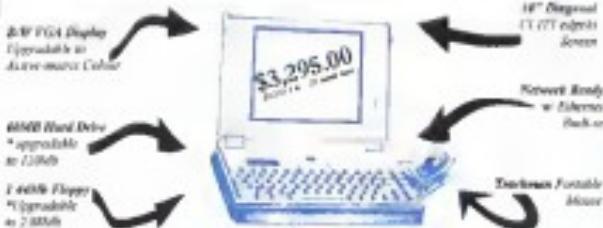
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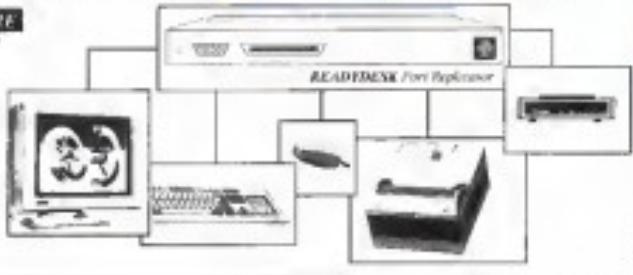

Z-NOTE 32ME Notebook

Processor	386DX-20MHz
Memory	Standard 2MB Max. 12MB
Cache Memory	64KB
Storage	Floppy 1.44MB 3.5" Hard Drive 30MB
Options	Floppy 2.8MB 3.5" Hard Drive 120MB
Interface	Parallel, LPT, 1x serial Modem, etc.
Keyboard	Standard 60/62 Keys Optional 80 Keys
Integrated LAS	Standard
Display Type	CGA/EGA VGA 4" LCD Screen


PRE-INSTALLED SOFTWARE

3DOS 3.0 with Advanced Power Management
Microsoft Windows 3.1
Microsoft LAN Manager Client/Shell
Novell Netware Client/Shell
Roxley FVFS System Client/Shell

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- 200 dpi in colour print mode
- 300 x 100 dpi dpi
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- Maximum print output is 18 A4 pages/hour (300 dpi)
- Parallel interface (Centronics) available
- IEEE 1284 compatible
- Windows printer drivers included



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Standard Configuration:

- 300 dpi printer
- 300 dpi Memory (8 MB/optional)
- 300 dpi Color Grade Quality Doctor
- IEEE 1284 Serial Driver
- Parallel Printer, 300 dpi CD-ROM Drive
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- 16 scalable
- 2 Post and slots
- CJKL Command level
- Emulations
- • Double Space
- • User 22.75E
- 200 sheet feeder tray (optional)

Canon LBP4 Plus

- 8 Pages per minute Laser
- 300x300 dpi standard output (1200x1200 dpi enhancement optional)
- 1 Shift Standard (Up to 4 YMCKO)
- Parallel, Serial & Video interface
- 24 Internal Fonts
- 16 bitmapped
- 16 scalable
- 2 Post and slots
- CJKL Command level
- Emulations
- • Double Space/LQ
- • User 22.75E
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P4PS

Printing Utility For PostScript Printers

Reviewed for MacUser by Paul Zirkler

Runs on:	Industry standard PCs
From:	ECOM-902/P, P.O. Box 141 030, Austin, TX 78716-0300, MS-802 1479 800-367-7880
Price:	Shareware US\$49.95 (includes print and manual). Postage extra-\$5.00 Retail price: US\$119.95
Rating:	MacUserCard Best Buy accepted. Innovative application state of the art.

Summary: P4PS is a utility that lets you do many things with your PostScript printer using plain ASCII text files. It prints double-sided documents with two pages per sheet.

One of the enticing features of a PostScript printer is that it needs no drivers even the simplest ASCII text file wrapped up in a lump of PostScript belief of can print the text. That's OK if you're using your favorite word processor but quite often you're just working at the DOS prompt, and simply want to print a copy of your AUTOSTART.BAT file or something.

At its simplest, P4PS can be used for this, but it really shines by concatenating longer files to create fancy PostScript commands that produce multiple pages per sheet of paper, among other things. You can put the paper back in the other side, and so on.

- To quote the documentation:
Print multiple pages ASCII as PostScript
Offer to a PostScript printer with an
arbitrary (optional) sleep command
- Automatic double-sided Generation 1 (two
(double-sided) pages per column, 1 or 2
printed copies ready to single-sided later
handling)
- Print multiple items one or 80 virtual
paper per physical sheet of paper in
Landscape or Portrait orientation
- Handout up to 200 columns per page—
greater for spreadsheets
- Control physical and virtual page head-
ers using macros to determine exactly
where you want them placed on the document
- Output to any DOS device or the specific
monitor
- Print multiple copies of each file
- Select a range of pages instead of the
entire document
- Select conditions or unusual, such as
sew-through printing
- Layout virtual pages across or down the
physical page, did pages or start new
printed pages for each file
- Specify physical page margins and the
space between word pages
- Specify where or when a file is inserted
into a previously-existing backlog

for it to become a possibility

- With ASCII files, you can restructure
any kind of text-based document, print
it out and then use the text of each line,
select file name, and select which lines or
all lines
- Double-clicking enables you to edit certain
sections directly into P4PS Edit—editing
any number of concatenated versions.

I have tried every option, and I have 2
long weeks to claim. The longest part is
working out which way to route the paper
before you put a bat into the printer for
double-sided. It's available from ECOM and
many bulletin boards, and it's worth a look.

Rating: **PERFORMANCE:** 8.0. It works well, and is
an uncomplicated app providing you can work
from the command line and don't need a graphical menu system.

USABILITY: 8.0. If you need to, it's quite
possible. It doesn't take up much room on
the disk, but it does carry a fair bit of overhead.

MANUALS: 3. The best part of the manual is
that it's a very short one you get to see the pro-
cesses by printing the manual to a booklet.

AVAILABILITY: 8.0. By mail (check) or
from ECOM or bulletin boards.

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(continued from page 43)
and DECnet) are becoming widely used
within law firms.

Internal vs. external network connections?

Several factors affect external links which connect an Ethernet or Token Ring connection to a parallel or serial connection. Some of these connection decisions also allow for more storage of capability with the network, allowing an increased number of printer to be placed anywhere along the network. Many printer manufacturers have their drivers in order to make the most of "remote printing."

"These external drivers are useful to connect an isolated host of network printers in a network. However, they do not offer the performance and functionality of a printer that has been designed at the outset as a network printer. That said, the connection (T1/E1) is one of the main servers you must download bootfiles in both printer and network/host performance. With several subnets, the advantage of the network's high bandwidth is delivered across all ports. Data must pass through the parallel or serial connection bootfiles. A network printer establishes a direct connection between the printer and the printer's controller. This process much faster passes issues and less memory/time consumed by allowing hosts to broadcast packets directly to the printer at true network speeds.

Should the printer act as a file server?

Network printers are becoming a necessity in spite of the fact they can replace the traditional print/file server arrangement with an intelligent printer that is its own print server. The next breed of network printers will truly push the network limit if the printer can store data and broadcast it to a print server in need of a job. These printers manage printjobs and provide printqueue functionality back to hosts and the network. This approach requires research and how performance is affected by utilizing print server duties from the file server and offloading the extra tasks of a standard print server and/or print server software on the file server.

**Are there other computers involved
in a print server but not on the LAN?**
A large and growing number of computing environments are currently based, or plan to base, a mix of client/server computing (PCs, Macintosh, UNIX workstations, some networks and some not). Unquestionably a separate printer would be purchased for each type of computer in a network. However, printer interface technologies have advanced in the last 2 years such that several manufacturers now offer print solutions which allow different computers to be connected to different printer ports simultaneously.

There are two methods of sharing printers between computers. The most common method is "print redirection" where the printer port on one computer is being shared. Once the printer determines that an instance is requesting data, all other ports are rendered inactive while the active port receives data. This may be appropriate for very limited printer sharing scenarios, computing situations where print requests from different hosts will not overlap. This scheme is implemented, however in a full print solution across dissimilar platforms since host computers reading to an instance port will be held up while the active port is being used.

A more feasible solution is one in which all ports are active in the same time, not overload. But for this scheme to allow different hosts to send print jobs simultaneously

without host computer delay, each printer must be equipped with its own large input buffer. This allows a host or network to offload six print data in the printer even though the printer is receiving a print job every second.

Another important question lies in the matter of disk array network printers which attach to controllers by replacing standard ports on the printer. This renders the printer incapable of connecting to resources on the main network.

What kind of processing speed will be required?

The most cost of graphics in computer systems is the transmission of images from our raw data. Adding multiple ports to the expansion further increases the need for processing. Most network printers offer IEEE-1284 processing, but the table should keep in mind that not all IEEE processors are equal, especially that are IEEE-2.

Would multiple resolutions be used on the same printer?

Some form of resolution switching is required in midrange printing environments where multiple resolutions are used (like dot matrix, dot matrix, or computer imaging, TGA, and so on). There are several ways to switch printer resolutions. One can offer resolution matching, with varying degrees of freedom and flexibility. Assigning an resolution to a port is a common method of resolution management, but this will not suffice if multiple resolutions will be used over that port (for instance one uses a screen port). Some printers manufacturers include software with the printer which loads one the host and which must be configured to switch each application with a specific resolution. The most flexible resolution management is a printer in which the resolution, interpretation of print jobs and host, and which does not require host configuration or additional software.

What kinds of paper handling and idle times are required?

Traditional printer considerations such as duty cycles and input/output capacity become much more important in network printing environments, simply because of the greatest number of hosts. Network printer duty cycles range from 20,000 to over 70,000 pages per minute, and input capacities range from 300 sheets to 1,000 sheets. The number of users and the volume of documents produced by each user will determine these numbers.

Many network printers offer either paper-handling features to reduce slacks of printing times. Some features to look for include automatic paper recovery, after stacking, input bin selection from the host, and collation.

As the number of users in a printing environment grows, as does the size of jobs, demand on a printer. Specific applications such as displaying 300 dpi or 117 dpi images are rapidly found out to require specialty printers. However, better printer technology has led to the enhancement of these capabilities, allowing an networked printer to be of utility in all cases.

How many users should the print solution serve?

There is no one model which can determine how many users a printer will serve. Users should be tested by single speed bottlenecks such as engine speeds (pages per minute). Once throughput, processing speed, resolution, and font independence, interface management, paper handling and duty cycle should all work in tandem to match the user's specific computing environment. ■

Other Considerations The Technical Product Manager of OEM Devices.

Computer Networks

at the Earth Summit in Rio

The international dialogue for Preserving Communications (UNCP), is playing a major role in preparing computer communications networks for environmental, non-governmental organizations and citizens across Africa, Europe and Asia before, during and after UNCED, reference known as the Earth Summits.

UNCP is a multi-field association of ten regional computer networks which provide telecommunications, mail and conferencing services to communications and information networking on a high quality and timely basis. It is the only global computer network which has been developed primarily as individuals and organizations working for the environment, sustainable development, human rights and peace.

UNCP is the United Nations Conference on Environment and Development that is taking place in Rio de Janeiro, Brazil, from June 3-14, 1992. This is

the largest United Nations conference in history and will be the first global gathering specifically for the environment since the Stockholm Conference in 1972.

Divided into Earth Summits, UNCED will concentrate a Rio Declaration that will represent the countries of the world will balance environmental concerns with development interests for a sustainable future. UNCP is involved in the very creation of the "TELECOM Reference Committee" managing and maintaining a mailing list of over 1000 people.

Joining the UN's leaders will be thousands of citizens from thirty countries participating in their day formal panels or sessions as well as informal parallel events. These citizens and non-governmental organizations will help develop prior international agreements to ensure that sustainable development policies result from this earth summit.

partner efforts. Many feel that this is the most likely for progress of the Earth to succeed. In addition, the UNCP project is in the area of communications and development to take account interests of the poor.

People working with many important areas believe it is important to successful change. Already, some environmental and other cultural groups have created an extremely efficient global communications network, so large now, that interest of such others, as well, in the dynamics of their governments.

UNCP has been instrumental in creating UNCP's teleconference facility which currently handles up to over 10,000 calls per month. In April, UNCP held its first regional meeting in Berlin, Germany, Russia, USA, Thailand, Norway, Sweden, Australia and Canada. Over 200 online conferences, discussions, reports and papers, updated with the latest developments and reports, as well as press conferences, were held.

With indicated forums for discussion and debate.

"The main concern of networking activities is to facilitate as it allows the official United Nations documents to be accessible to citizens around the world, thus providing broader citizen participation in a broad-based manner than ever been possible before. By participating in these local conferences on the UNCP networks, citizens can be active in and influence worldwide discussions on the most real issues of our time. APC has organized, according to a powerful tool in the form of global partners, their own regional meetings and forums for decision-making."

APC's Brazilian members, which include Abraflata, has been involved in specialized communications services for management and organization of UNCP's 1992 World Telecommunications and Conferences and meetings, APC will look international and others around the world with key documents.

Continued on page 48

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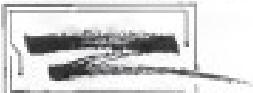
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Continuing from the Level 1 course, students will be exposed to the Microsoft Disk Operating System as it stands. This course deals with batch file configuration files and the advanced DOS commands. This course will also focus upon various other extensions of DOS. Please inquire at 604 278-5101 or 278-

Continued from page 43

tele-centres terminating the conference

Alberta is planning to provide workstations at several easily accessible locations throughout the province—each workstation will be connected to a central computer system containing all the information. The APC executive staff will ensure that the system is functioning securely for those needing to send faxes and teleacs, and also receive telexes and electronic mail on behalf of the organization.

Local offices and colleagues around the world, and new users in regions and states located from Rio Grande where the APC delegates are based, will also provide on-site training for those new to the APC system as well as methodology to do low-cost video mail and conferencing services. We will play a vital role in connecting universities, companies and other members all over the world.

By converging information gathering and sharing, which computer technology can do at the APC's disposal allows ENCREC can truly be an Earth forum for all continents both present and its many.

Companies who wish to participate in ENCREC discussions or any of the other APC's activities, can obtain an account on Web via APC's search service. Contact: Chris Parker, Executive Secretary and Organizational Services, the country has accounts on

Web, and set up by using the network to promote social and environmental improvements. The cost is a typical rate of about \$50 per month.

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Brian Powell is Vice Chairman Director for APC.

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RAM: 4 MB
Operating Speed: 25 MHz
Cache: 8K Internal
I.O.D.E. Drive: 105 MB
Floppy Drive: 1.2 MB
Video Card: 1024 x 768 VGA
Monitor: 14" Colour VGA

suggested retail **\$2340.00**



IPC 486DX

RAM: 4 MB
Operating Speed: 33 MHz
Cache: 128K External
I.O.D.E. Drive: 105 MB
Floppy Drive: 1.2 MB
Video Card: 1024 x 768 VGA
Monitor: 14" Colour VGA

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Leave it to the average computer buyer one of the most important product features is the price. All things being equal, it just doesn't make sense to pay more than you have to for a standard dependable system.

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Upgrading your PC

by Randy Green

Windows 3.1 invaded "multimedia." If you want your computer to make douchey quality sound and movie, you need special hardware. I will be adding almost that soon.

Finally, OEM 2.0 has arrived. Though most users are still using over Windows 3.1, computer programmers are finally discussing how to use OEM for the upcoming generation of applications. Windows is a program that can run in the DOS environment instead of OEM. We all know that the most upgrades will occur if it's very well, but for the programs themselves this move has already started. If OEM is in your future, you will need inexpensive hardware. Later, I will tell you how to prepare your computer for the OEM compatibility.

Speeding Up Windows 3.1

What can you do speed up Windows 3.1? Windows is a very large program. Three RAM is ok. Morewill likes us downsize. Windows is a machine with 12 MB of RAM. Don't worry about RAM. You would need a 4 MB hard disk to store all the data for running Windows, and 8 MB of memory. Older won't hurt.

2. Windows does no extensive amount of behind-the-scenes housekeeping to track all those windows and clickable controls. Those CPU power at 33 MHz are great. Upgrades to a 33 MHz CPU.

3. Windows consumes the hard disk scratchy. Get a fast hard disk that is compatible with the new 32-bit Windows. Faster access methods.

4. Get more RAM and hard to read as a disk cache to speed the hard disk as much as possible. Use a debugger such as DBX or QBasic to see how the Windows data is in the process and remove from the cache of the disk, and to see each directory.

5. Windows spends most of its time processing files. When you hit the "A" key, Windows has to go into the bottleneck down

on the screen. DOS programs, by contrast, can parse the "A" in a single stroke. For speed, you need an auxiliary computer especially for parsing dem (3.0, a video card with a "graphics accelerator"). Then Windows can hand the graphics accelerator a whole sentence at once, and leave it to work soon while the main CPU goes on with something more important. Because you have two computers instead of one working for you, and because the processor in the graphics accelerator does all the disk parsing, the screen displays at least five times more quickly.

8. There is a very inexpensive upgrade that prevents losing characters coming in on a modem. You replace the 14400 VUART chips on your 386/486 case with 24556 chips. The 14400s have a 16-bits-per-byte buffer to write incoming characters when Windows is too busy to do with them.

So, to make your computer really sing under Windows, you need a faster processor, more RAM, get a faster hard disk and, once off, get a graphics accelerator board. I will tell you more about how to do this later.

Preparing Windows for Multimedia

The new part of multimedia is about making audio. There are four basic methods of making sound:

1. Use the PC speaker, pulling the tone in and out with software. The results sound like Edison's phonograph.
2. Windows. You take digital samples of real-world sound (e.g., speech, singing, water splashing) and then play them back. This is most the reason for the 32-bit Windows. It has a 16-bit Giga card. Windows needs around 16 MB memory to make samples with sonic tape-like four 16-bit quality can sound like a KORG electric organ. Karen Carpenter, the disco moderator on

THE COMPUTER you bought three years ago runs just as fast today as the day you took it home from the store. Yet, like Circe of mythology, modern software, such as Windows 3.1, turns your machine into a pig. The problem is the complexity and overhead of the new GUIs (graphical user interfaces.) This month I will tell you many ways to speed up your old machine.

the IBM microwave oven, taught Windows to say "Ouch" whenever she makes an error.

3. FM Synthesizer. You can stick a tiny music synthesizer inside your computer to play music. These produce pretty electronic sounds—usually the intestinal sounds of expensive studio synthesizers.

4. MIDI. If you are a musician, you might already own a set of musical instruments and know what they are. The MIDI acronym means that. The computer acts like a glorified piano keyboard by playing all your MIDI instruments. The computer can record your finger movements as you play the keyboard, then play them back later, in a different key or with different dynamic strengths. The computer also allows you to edit your work and build up multi-track compositions.

The Cards

A standard audio CD holds about 65 minutes of music. To store the digital waveform for 65 minutes requires 1.8 GB of raw data. 800 MB of hard disk would cost about \$750. We would like thousands of hours of recordings on tape. The hard disk is not this world's best medium of storage.

- There are several ways out of this bind:
1. Just record audio CD-quality sound.
 2. Use the other two methods—the synthesizer and MIDI, which requires very little storage space even for a long piece.
 3. Buy special hardware that can compress and decompress the waveform as it plays to squeeze the wave information into a smaller space—like Stocker, but for audio.
 4. If you are willing to give up with few files, CD-quality audio telephone quality, then you can drastically compress the waveform. You don't need nearly as

much space to store them. But even then a few words of speech will take about 100K.

5. Don't ever attempt to store sounds on a hard disk. Store them on gigabit optical disks, or on CD-ROMs. CD-ROMs must come pre-recorded from the factory. You cannot record your own sounds onto them.

Sound Card Possibilities

So, to prepare for sound, you will likely want to add another card. Get a CD-ROM, or a hard disk, or possibly both to store your MIDI sound libraries.

You can buy cards such as the 3D-Sound Multimedia Pro. One has all three methods of reading stored on a single card. If you want higher quality sound around you need to buy a stand-up synthesizer card such as the Pro Audio Synthesizer or Tandy Stocker.

The Roland LAPG4 is a full-blown 16-bit MIDI synthesizer on a card that fits directly into your computer. It includes over 300 different "sound instruments" and 500 sound effects. It allows you to handle forming special effects. If you want to control external MIDI instruments as well, just add the interface MC32-I attachment. The Roland included some soft-ware, but leave with your own ears before you make your choices.

Microsoft has proposed a standard for multimedia computers called MPEX. Compliant systems have MIDI synthesizer, a voice synthesizer, MIDI and a CD-ROM drive that can play audio CDs.

Windows fully developed software drivers, the sound cards are useless. Make sure you have the hardware working under Windows, with the programs/games you plan to use. Installation doesn't do that.

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wanted to sell your old machine and buy a new. However, price is no longer.

Upgrades are Upgrade Bleed

Upgrading can be painful, especially if upgrading the microprocessor. There is an almost unconscious concern of what happens to you. You replace your old 386 with a 486, which ends up with a brand new 386-like performance!

Then you discover your cheap monitor/386 card cannot quite keep up with the new CPU, so you end up replacing it, too. Then your new monitor is costly. It's already broken, so you end up buying a different monitor, costing much more. At some point, you've got to stop upgrading or pay off. You wouldn't let it happen to your car, would you?

So you make the problem worse by your power supply. Upgrades continue, your cheap power supply cannot provide enough example power for the additional MMAs operation. So you have to replace it with a higher quality one. Then you find there is no available model of power supply that will fit your case, so you have to replace the case itself.

Now you finally get all the hardware working, only to discover that 10% of your software is longer works. Programmers never think about how broken upgrade components affect the rest of the system. What about the rest of the system?

Then you find that software and different upgrades does not mix well. You now have to keep upgrading the rest of your software to avoid conflicts with the new software.

Finally you have decided to give up and give a search-board, sound-1/3D card, power supply case and software that nobody wants. A short time ago, they were part of a dealership, perfectly functioning computers.

The computer sits in storage, with no monitor (either in the nightmare, there is no guarantee to prevent this). Only a single component remains functional. That last bit you can keep for an additional component warranty.

Upgrading your XT to an AT

Attempting to upgrade an XT to an AT is an even worse nightmare. The power-supply boards and speaker boards probably will not fit. The new AT cards may not fit in at all in the case. You will keep trying and AT disk controllers, it will run slower. Even drives slower than some XT disk controllers would. You can much better off selling your old XT instead.

Do the Other Hand

Sometimes you do the upgrade easily and safely. It depends greatly if you planned for upgrades when you first bought your computer, and also if you have old power computer in. The newer it is, the more likely upgrading will go smoothly.

For example, adding RAM or replacing a new video card rarely causes complications. There is no need to buy a new monitor to add a second hard disk.

And if the knowledgeable people who they think of power upgrade requirements, plus factors you consider others won't.

Adding RAM

RAM is now exceeding the number 386 processor (1.4MHz) clocking. Adding RAM to the simplest and cheapest method of putting more memory back into an old machine.

However, there are things to watch out for. Adding too much slows down speed. Very few programs know how to use it. It used to "preemptive" or move it back to static RAM (clocked at 1.4MHz/LIM). Correspondingly RAM before ordinary programs can run.

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How Fast?

64 MHz standard RAM is faster than 32-MHz standard RAM. It does not hurt to use RAM that is a little faster than you need. However, it does not help either. Putting in 90 MB RAM when the motherboard manufacturer specifies 80 MB will not speed your machine up. The advantage of using 90 MB RAM comes when you later upgrade the RAM. If you have a machine with 80 MB RAM, you could never put 90 MB RAM. For motherboards that give you the option of configuring different speeds of RAM, use the slower supported speed.

Disk Caching

Using 512 KB to 7 MB of RAM as a disk-caching program to speed their processor is spending up a machine. Caching programs increase your use of the hard disk, and attempt to keep the data on the hard disk you use most often in their private "cache" (local). Then when you go to get data off the hard disk, the caching program retrieves and loads it to your buffers of three bytes at a time.

The most reliable caching program is Super PG ROM. Western Digital comes with a free shareware caching card called ROMACACHE. It comes with a 512 KB, new cache card. MAXCACHE 2000 (Windows 3.1 version) with an improved version called MAXCACHE 2000L.

If you don't have a cache, you can run the memory you spend on your RAM. Cache helps to avoid page faults. If you don't want to pay extra, you could be wasting the RAM's share of your computer's power.

Upgrading To A 486 23MHz

To upgrade your CPU you must usually replace your whole motherboard. Through pins you can often replace your RAM, providing little extra strength.

I already mentioned two of the nightmares you can encounter if the older components of your computer are set up so well.

Replacing a motherboard is quite easy if you have a tower case where you can access both sides of the board. Smaller cases are much more difficult since you have to slide all the screws without being able to see them.

28 MHz microchips are more robust. They are not so likely to short. They also are quite an "ideal" for the older component and software. If you are considering upgrading a motherboard of unknown age, I suggest going just to the 38 MHz. Unfortunately, it is not possible to find 38 MHz motherboards down this.

If you have previous experience, such as the Turbo Cool power supplies, Turbo cool-I/O, etc., then you will be quite safe in upgrading to 23 MHz.

I personally would not recommend going beyond 23 MHz or 48 MHz. Every time you double the clock speed you increase the radio resistance to take the heat-bias times. The higher the clock speeds, cut tighter the tolerances, and the fanless and noise decreases the life-times.

There are, of course, some beneficially designed and almost 40 MHz machines. However, you probably won't find these for bargain-basement prices.

Graphics

In nearly one can have your color and 3D, too. But just like everything else, you can. 386 has just increased its limit of 640 KB. The top of the computer it looks like a plug-and-play, averaging 20 MHz 486 CPU chip. However, recently, inside it is a special device, clocking along at 33 MHz. You get the idea of how much.

There are now a spattering of motherboards that use this new chip. Interestingly there will be lots to upgrade when another bunch.

Don't try to buy ahead more than two years into the future. By then disk prices will be much lower, and most of what you know about disks now will be obsolete. 99

What are the costs?

1. These chips are much more expensive than ordinary 50 MHz chips.
2. They give off a lot of heat. But to use them to lower case with lots of room so cables don't block the air flow, and no power loss, keep the remaining in a metal clip. Choose a permanent power supply with a powerful fan.
3. There is an increased 100% increase of the decoder chip. This is because the 386 has 16 MB of SRAM cache right inside the CPU chip, but the 286 does not. The 486 can do quite a bit of work in 16 MB of SRAM cache, but it is still not as good as the 286 cache. Before buying or replacing the "outside world" off the chip at 38 MHz.
4. Suddenly, these clocked-in-the-machines at 33 MHz are not user and never reduce their ordinary 80% at 20 MHz.

A Biggie, Faster Hard Disk

Now you already have a hard disk, the next thing to do is get a second one bigger than your first. Since that you have just kept them. Unfortunately there are several ways you can make this.

New Big & Old?

You may already have a computer, you have a good idea of how fast your storage needs are increasing. You have also been each new version of each program gets the size and user. Now you are forced to add another program after each-new program. You may have already considered an ideally reasonable like Windows, and have seen well it works for your use of files. So, make an estimate of what you need, and bought that with what you need.

Don't try to buy larger sizes than you need in the future. By then disk prices will be much lower, and most of what you know about disks now will be obsolete.

Maximizing Disk Sizes

1 megabyte of RAM is 1,000,000 characters (or the 20th power byte). Hard disk capacities are not measured in megabytes. To 20,000,000 characters does RAM and hard disk should be measured the same way. However, storage is not always true. A few disk manufacturers agree.

There is no legal standard way to measure the size of a hard disk. Manufacturers have invented various methods ways of measuring the space.

Most disk drives quote capacity in megabytes. In fact the "meg" megabyte of only 1,000,000 characters. This follows the stated capacity by about 5%.

SOC (sector) makes quote the information unit capacity, or includes unnecessary areas of disk that inflates the stated capacity by 10 to 20% the way floppy disk manufacturers.

The computer industry has made an attempt to get standard measures. Technicians independently defined each measuring schemes, and explain why each a poor choice. Instead, it is of lesser importance which scheme we settle on, but we need to legitimate some common notation to use in conjunction shop.

Fortunately, there is one way to defend yourself. Before you buy a drive, ask the vendor for the disk's geometry.

*cylinders
heads
sectors/track*

Then calculate the capacity in megabytes with this formula:

$$(c * h * s) / 1040$$

E.g. The Maxtor XT-4700F drive has 1,000 cylinders, 16 heads, and 64 sectors per track. The capacity is measured as 1,000 * 16 * 64 = 2,048 * 64 = 128,000 MB. Make the drive as having 128,000 MB. This is because Maxtor is quoting in direct addressing.

Disk Speed

The most important measure of disk speed is the average access time. A disk that might be 15 milliseconds. A slow disk would be 15 milliseconds. The smaller the number the better.

Average access time measures how long the read heads take to move from one part of the disk to another.

The average access time is measured from the time the disk can choose between two disk computers since the heads go to the right place. The only way to find this out is to install the disk in your machine and try it. Specifications are overly optimistic. As a rough guide, drives such as SCSI drives per track will have twice transfer rates.

MMR

If you already have an MFM disk, you will have trouble finding a new record disk. About the largest one you can still buy is 40 MB. You might consider getting a second copy of the disk. That will mean changing your disk controller. It also gives you time to be able to use your old hard disk. SCSI has suffered the same fate as MFM.

IDE

There is a standard for IDE, called ATA. However, until recently few manufacturers paid any attention to it except Maxtor. Most older IDE drives are auto-selected. When it comes time to add a second drive, you may have trouble. The best chance of success, plus second drive should be the same brand and family to your first one. It does not need to be the same model. SCSI should have the same advantages just a different interface.

In one unfortunate case, the newer length second disk with the exact same model number as would one need because the interface changed the design of the interface that model goes through on life cycle.

The advantage of switching with the ATA standard is to allow you to add and switch drives from any number. Since you're buying several different performance objectives, you can't preselect a transmission-based path or controller. Often unselected paths work just fine with the general interface.

The way most SCSI drives are supported your particular SCSI drive. If SCSI is a big part of your future, stick with the ATA, parallel or another type of disk controller, such as EIDE or SCSI.

EIDE

EIDE is fast and is works with its special working as device drivers, built in Windows and OS/2. Installing a second drive is very simple. There's very little that can go wrong. Since EIDE has a strong standard, you can mix and match drives from different vendors.

Since it is solid, you can consider EIDE add-ons. EIDE is still a very solid addition to EISA drives for file, but the drives are expensive. There are no longer drives available under 200 MB. For now, EIDE is the most friendly-for-a-new, but very simple you will be able to upgrade in a few years — recall the day of SCSI drives are still rare. So, you might want to consider installing an SCSI card.

SCSI

For years SCSI boosters have been saying, "It isn't space working for, but just not, is a SCSI bus." Is this true?

Consider, it finally working. There are a reported for how hard disks switched in SCSI bus, but no sufficient standard for how the host adapter boards use the SCSI Adapters and Card have taken this bill to the basics and created a standard called ASPI. It allows software drivers written by different companies to work together.

Now, after a ten-year wait, it is finally possible to attach hard disks, tapes, SCSI RAM, optical discs, SCSI drives, printers — all from different manufacturers — to one SCSI bus. What is even more remarkable is all of these drives can be used with the ASPI interface and doesn't require any special drivers, controllers, or BIOS. While SCSI will work as a disk controller for each of these drives, there will be a single bus and a single SCSI host adapter you can handle all these drives.

Getting your first SCSI drive working is daunting. For example, the Adaptec SCSI host adapter has 23 contacts pin to fit in (not much practically on home theory). Not many SCSI drives require 23 contacts. 24200, 24300, 24500, SCSI expansions, and SCSI controller cards, ASPI drives, etc. SCSI is said that much more difficult than the older SCSI logic, quite different. However, you can buy a SCSI card, very easily and inexpensively, using any SCSI drives from different vendors.

DCS and SCSI do not directly support SCSI disk they do SCSI and EISA. This implies the ongoing problem of finding and installing up-to-date drivers to keep SCSI working in home.

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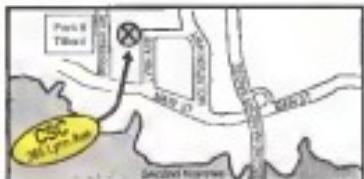
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Nantucket/CA Combo

Lights Fire Under Xbase

LOS ANGELES, CALIFORNIA, MAY 8 (UPI) — While the big boys like Borland and Microsoft were seeing the Xbase standard off its nose, Computer Associates' position of Nantucket seems to have held the table. Now the Xbase standard is the new buzzword and the long hypothesized workstation world—was forced to admit what was always true anyway: Xbase is here to stay.

Initially, the discussion among users seemed to be moving in two directions. One is toward the inclusion of Xbase support, funded by Computer Associates' partner of Nantucket, which is providing a client to the other database vendors and whitening the Xbase market. The other direction is client/server architecture which is of particular interest to the corporate consultant.

Client/server is of interest because it is more scales and increases the capacity of the data in the database. But client/server is too expensive for small businesses.

When Ashton-Tate's new Xbase client is announced, it will be on Windows, but Ashton-Tate was not alone in any way that Microsoft was not. Xbase clients were seen as a healthy diversifying venture and through the contacts other companies who were looking heavily in the market using the format, the Fox Software/Advanced Data was even trying to get the word "Xbase" and "Windows" and diversifying in one nice email to us. Then, was the recent database industry leader Adam Osborne introduced the宇宙的客户 "Silver" with different capitalizations and gave it to the database

community. Toward the end, Ashton-Tate did say it would make a "beta" of the DBF file format in the world but it was late enough to indicate any serious work on it needed.

Nantucket's claim to fame was it was one of the first to take Ashton-Tate's thought off the business market. In introducing Clipper, a database competitor, Clipper could take DBBF language programs and were designed to run on the Macintosh. One didn't need the DBBF program to run and that could be disastrous for Clipper.

Today, however, the estimation was that Nantucket was one of the giant together, struggling financially and because of its age, it was predicted to go under any minute.

But the long-standing Nantucket has taken with the Computer Associates announcement just re-approaches the business community's confidence in Xbase and it has forced other companies to make public a commitment to Xbase as well.

Microsoft, Fox Software, Advanced Data, and Oracle Corporation have all announced they will support the new Xbase standard (formulated by Mark Society and introduced at the XBase Standards Planning and Requirements Committee (XSPARC) of the American National Standards Institute (ANSI)).

Oracle's President, Philippe Kahn, was right when he said that until the format hasn't been set why form the standards. But that's because it will be a Xbase format.

Nantucket To Play Key Role

In CA Database Strategy

MELVILLE, NEW YORK, MAY 5 (UPI) — Top officials of Computer Associates' laboratories pitched in to continue development of Nantucket Corp.'s products, and said the company still plays an important role in CA's growth in the personal computer market.

CA Chairman and Chief Executive Officer Wong, and Supply Chain Services President for planning and strategic analysis, Michael S. Koenig, both believe their company must move to another location, the Los Angeles office that makes Clipper, a DBBF-compatible client/server management package for PCs.

Computer Associates' will definitely continue with Clipper development, Wong said. He said the company will also continue the Argus project, a Nantucket effort to develop object-oriented database technology for Microsoft's Windows environment.

Computer Associates already sells a DBBF-compatible Windows database product called Argus. The company will probably merge the new DBF file and the Argus products into Future Windows division and vice, Wong said.

Koenig and Computer Associates hope to give Clipper better compatibility as DBA nowwide database software. Computer Associates still several marketing database management products, the result of acquisitions in the past few years.

Nantucket will disappear in a separate company, but its developers are "an integral part of the acquisition" and will continue to work for Computer Associates, Wong said. Nantucket's Los Angeles location — close

to a CA office in the city — will be maintained, the officials said.

Commenting on the massive rash of acquisitions in the personal computer market — Microsoft announced plans to buy Fox Software just weeks ago, and last week Boston International took over three other smaller software companies to add to the importance of the market — Wong said, "or the Macintosh is going to suffer again."

He said the consolidation could benefit users by putting the resources of larger companies behind the Xbase products originally developed by small firms.

Computer Associates hopes to close in purchase of the privately held Nantucket action shortly. The terms of the agreement are not being disclosed.

Contributed by Rich Gosselin, Computer Associates, 510-342-5172



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Newsbytes

CAD NEWS

Toymaker Turns To CAD/CAM Software

BY MICHAEL TONG, HONG KONG, APR. 21 — Proclaim Models Limited (PML), a subsidiary of U.S.-based Modeler Mac, has turned to Unigraphics software from EDS Electronics (EdS) to support an upgraded design and manufacturing (CAD/CAM) system from a PCL-based PC-based computer-aided engineering (CAE) system.

The Unigraphics system, consisting of three fast-spins ED35 workstations, will extend PML's capabilities to solid modeling, surfacing, analysis, three-dimensional drafting and manufacturing. One workstation will employ Unigraphics' CorpLoc Workstation Workstation to run the model, part/feature editing.

"After several years of experience with low-potential PC-based CAD systems we were forced to

spend up our design process," said M.C. Chan, president. "Unigraphics is not much faster but also provides a CAD module that is directly linked to our CNC cutting machines. By streamlining these tasks, we expect the whole design process, from model drafting to manufacturing, to be at least 20 percent more efficient than before, with a corresponding rise in productivity and cost reduction," he added.

PML, manufacturers of models of the full range of cars, including Hot Wind Cars and Rapier 2000, as well as planes like Xiang Long. The design process begins with three-dimensional part drawings prepared by Maser in the U.S. These are transferred by e-mail to PML's workstations where

Unigraphics is used to create 2D and three-dimensional part models.

Later, design details on the 2D parts can be integrated, revised and checked, enabling easy viewing. In addition, the models can be modified at any time, or when design changes are necessary.

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CANADIAN NEWS

AT&T To Manufacture in Canada

WATERLOO, ONTARIO, APR. 24 — AT&T—Telecommunications' Canadian subsidiary was created in 1989, AT&T Canada has announced plans for its first manufacturing in Canada. A plant is being set up at NCR Canada in Waterloo will make circuit boards for AT&T's PT-8000 Lightwave Systems, which link telephone data and voice signals over optical fibers.

AT&T acquired NCR last year. The NCR plant in Waterloo will continue making circuit boards for NCR while setting up its own circuit production line to produce the parts for AT&T's Fiber Optic Manufacturing, Beaman added. The plant will begin operations globally.

The new plant will add about 20 jobs to the existing staff of roughly 600 at the Waterloo plant, AT&T Canada spokesman James Beaman said. Newphones, developer of the softswitch-mounted telephony system produced Waterloo will supplement existing production of the parts for AT&T's Fiber Optic Manufacturing, Beaman added. The plant will be located in Waterloo, Ontario, and will produce 100,000 circuit boards each year.

Within a year, AT&T plans to begin manufacturing circuit boards for two other telecommunications products, the SACH II Digital Access and Cross-Connect System and the DCM-1000 Network Multiplexer, at the plant. AT&T also expects to begin research and development projects in Canada to benefit local members who will benefit the local economy.

Within a year, AT&T plans to begin

manufacturing circuit boards for two other telecommunications products, the SACH II Digital Access and Cross-Connect System and the DCM-1000 Network Multiplexer, at the plant. AT&T also expects to begin research and development projects in Canada to benefit local members who will benefit the local economy.

AT&T Network Systems, based in Minneapolis, Minn., will continue to sell telecommunications systems in Canada, the United States, and around the world in telephone equipment and other telecommunications products.

By the end of 1992, the company and its Canadian operations will produce more than 30,000 circuit boards, valued at \$20 million per year.

Contact: Suzanne Beaman, AT&T Canada, 416-486-5564, Ross Meyer, AT&T Network Systems, 301-688-2405.

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Versatile New Color Copier Introduced By Canon

TOKYO, JAPAN (APR. 29 '92)—Canon has developed a business (about US\$20,000) new powerful color copier which it claims is the smallest and most lightweight color copier in the world. It is also designed to connect to PCs to print out documents for a company, and a processor of photographs.

Canon's latest copier is designed for the desktop, and prints pages in full color. Called the BJ copier Plus JCZ, it supports 300 dpi grayscale resolution, and 256 dpi color-plus-color resolution.

Canon's latest copier is based on the company's "Ink-jet" printer technology, an advanced ink jet printing method. This ink-jet technology is already employed by Canon printers for personal computers, such as those for Apple's Macintosh, and the NEC PC-9801.

Canon's BJ copier can also be connected directly with the Macintosh and the PC-9801 through a special interface called "Intelligent Processing Unit" (IPU). This interface allows the copier to be used as a full-color printer for the Macintosh and the PC-9801. Images of the screen can also be printed on the copier. The unit is further designed to be a scanner as input color pictures data into the personal computer. Canon says its original or personal computers, Canon's new copier or personal computers, can each scan up to 100 pages per minute.

The price of this copier is \$4,500 U.S. and a weight 30 kg. It can print prints in A4-size paper. The copying rate is about 36 seconds per page.

Contact Canon 904-279-1421.

Boston Computer Museum Hosts Virtual Reality Display

BOSTON, MASSACHUSETTS, APR. 19 (UPI)—The Computer Museum is offering visitors a chance to explore virtual reality via what the museum says is the first public demonstration of virtual reality using networked personal computers. Two people at a time will be able to enter in an imaginary 3D universe and build an imaginary house.

The demonstration will use personal computers built around Intel 486 microprocessors—two per person. Enhanced-level video network connections provide current video and specially designed data links to each computer.

Again, visitors, a spokesman for Intel, said researchers had systems costs about \$20,000 per person. That, he said, is considerably cheaper than a dedicated virtual reality workstation, which would be more than \$100,000.

Visitors to the exhibit will put helmets and earphones that create the illusion of stepping into an artificial world. They will use wands to pick up objects and project them into realistic environments, and the object turned, a variety of parts for building imaginary houses—such as walls, different roof shapes, and so on—will be supplied, and two people will be able to work together in the shared universe to build a house.

Ed Anderson, a spokesman for the museum, said a press demonstration will occur this summer, around July 10, and "The Amazing Personal Computer."

Intel and Hewlett-Packard created the exhibit for the Computer Museum.

Contact U.P. Anderson, The Computer Museum, 600 Boylston St., Boston, Mass. 02116; (617) 426-2600. Fax (617) 426-2601.

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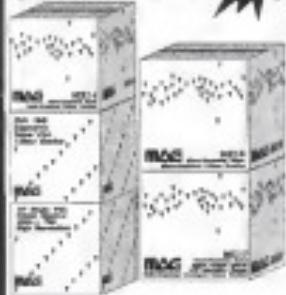
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DEFINITE, CALIFORNIA, APR 21 (CH)—With the considerable cost of multimedia personal computers spiking these days, many users are looking to add multimedia capability to their existing systems. Advanced Logic Research's (ALR) answer is to sell its offering MPC machines on its own terms of payment plan, and plans to offer the new computers significantly lower than the competition.

MPC systems are IBM or compatible computers equipped with advanced sound capability and compact disc read/write memory drives geared toward the use of video, animation, and sound. ALR says the average MPC costs from around US\$4,500 but is offering its MPCs at US\$1,100 to US\$1,800, depending on configuration.

ALR's first MPCs were based on 386SX processors, the Phoenixx Super 386/386SX, for US\$1,200-\$1,500, and the Phoenix 386/386SX, for US\$1,600-\$1,900. Both computers have 386 Super Video Graphics Array (SVGA) resolution, with 256 X 320 resolution, 8MB card.

The 386/386 has an Intel 386SX microprocessor running at 25 megahertz (MHz) with 4 megabytes (MB) of random access memory (RAM) on the motherboard which can be upgraded to 16 MB of RAM, and an 8MB hard disk. The 386/386 offers a built-in monitor and can be upgraded to 15 inch CRT or 17 inch flat panel monitor, or 17 inch flat panel monitor.

Both systems come with a free audio package. Phoenixx was based from Media Vision, and is based on two 32-bit SCSI (SCSI) ROM drives with a total 340 megabytes (MB) of storage. Both also include a flash read/write memory (FROM) basic input/output (BIOS) system on the hardware peripheral which the user can support or easily upgrade via software in the future. ALR

The software included with the systems is ALR's version of Microsoft 3.0, Microsoft Windows 3.1, and Microsoft Multimedia Works, no integrated software package including a talking tutorial, word processor, spreadsheet and charting programs, drawing and graphics programs, and Microsoft Bookshelf, a dictionary, encyclopedias and other CDROM discs, research and entertainment software, and Multimedia Backups, editing music computers.

Compared to similar MPC units from Trinity, ALR says its MPC-based computers are faster and less expensive than a less powerful Trinity unit.

The Trinity 486SX/386 is based on a 386SX chip with an 80 MHz processor and a 10MB hard disk, for US\$1,400, while the 386SX/386 is US\$1,600.

With an 80 MHz hard disk it only US\$2,300. Robert Roberts of ALR told *Computer News*, "A 100 MHz hard disk brings the 486SX up to US\$1,700, and it is significantly less than the Trinity computer, Roberts said."

The 386/386 offers with the ALR computers in much better the value modeling of Trinity. Roberts said, "With Trinity and Compaq's 386 SX/386 MPC systems, these boxes can only display 16 colors at a time, whereas in the 386 colors a monitor by the ALR MPCs display 256 colors. This is the ALR advantage. We are not limited to the standard screen size of 1024x768 while the Trinity remains only 800x600."

The ALR MPC computers come with a 1-year limited warranty. The company says optional on-site and extended warranties are available. ALR says it expects to ship its first MPC models beginning in June of this year.

Contact: Radio Roberts, Advanced Logic Research, 714-851-4700 ext. 400.

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Russian-US Venture Develops Handwriting Recognition

MOSCOW/ELGIN/ROCHESTER, COLORADO, APR 25 (UPI)—Paragraph International, a Russian-American business venture, has announced that it will join with CG Corporation to develop Calligrapher, aursive handwriting recognition software for DOS-based PC/Windows operating systems.

Under terms of the agreement, CG will be a distributor worldwide distributor and publisher marketing Calligrapher in addition to its own products. CG offers a unique optical pen-and-character recognition engine.

Paragraph International said it would demonstrate an early version of Calligrapher at PC/Forum on April 26th. Like its competitors, Paragraph International is working with independent software vendors (ISVs) and has obtained grants to ensure efficient integration of the technology into PCs.

The ability of computer operating systems to recognize cursive handwriting is

essential to the success of pen-based applications. Pen computers allow users to enter directly into a editor the screen control of using a keyboard. Control refers to the writing where the letters are joined together, so when we sign our name. The first pen-based personal handwriting system is planned for release in 1993.

Another, Calligrapher-Java of Paragraph International has the exclusive marketing rights for all products developed by Paragraph in a Russian-American joint venture formed in 1989. Paragraph JV is headquartered in Moscow.

In October, Paragraph has announced that it had signed a non-exclusive agreement with Apple Computer which calls for the two companies to jointly develop Paragraph's handwriting recognition technology. The agreement also funds licensing and royalty benefits.

Contact Michael Palusz, Paragraph International, 300-449-8777, or 303-444-2733, Metric Mexico, CG Corporation, 419-540-1800.

PC NEWS

Microsoft Announces Flash File System

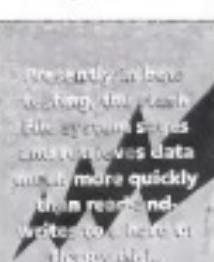
REDMOND, WASHINGTON, APR 21 (UPI)—Microsoft has announced a new storage technology that will let users access data as fast as 100 times faster than memory, or faster than an ordinary disk in a PC.

The company said the Flash File System also makes it easy to develop enterprise Microsoft and Windows applications. For embedded systems and mobile devices, it also allows developers to move data to a wide range of existing DOS and Windows development tools.

Flash memory is non-volatile, so any data in memory is not lost when the computer is turned off. Flash memory uses and processes data much more quickly than random access memory or hard disk drives.

Microsoft said it has reduced the speed requirements for flash cards to 100 MHz, which will allow other companies to develop systems for reading and writing data. Flash memory cards can be removed and inserted in computers much like floppy disks are, and will work with any PC that supports the Microsoft Flash File system. Flash cards will be especially useful in portable PCs,掌上电脑 and other compact computing systems where space is at a premium. Using flash memory chips, small computers can often fit much data storage space in larger units.

Microsoft used a test test Intel's disk drive which can store up to 55 megabytes. Like hard drives, flash cards are stored on flat plastic media by tracks, but each track due to the power of 100 MHz it would be preferable that flash cards would be able to store as much as half



a gigabyte of data, or 100 times faster than memory.

Intel, meanwhile, said this week that it had cut the price of its flash chips, which is said will reportedly cut cost more than twice the price of conventional memory and many times the cost of hard disk drives.

Intel's 1-MB flash chip, introduced last November, costs the disk cache currently more or less eight and 20 MB, \$1000-\$1200, which can be easily increased, until removed by the user. The number of memory that can be stored on a flash chip are limited, although the number is in the hundreds of thousands. This will limit the life of the product that needs to several years and millions. Flash cards require special drivers in the PC, as well as special software for real existing system. However, the computer can have several drivers for flash memory.

Flash cards will also keep longer because they do not require power to store the flash chips when completely hot power from a hard drive. The Flash File system is presently in beta testing.

So you look for flash cards to replace hard disk drives. Depending on the application, desktop computers used for tasks such as graphics computer-aided design (CAD) and other data intensive tasks will require considerably more storage capacity than today's flash cards can provide.

Contact Goran Hargray, Microsoft, 206-902-8800.

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CPA Awards Honor Journalists, Including Newsbytes

NW YORK, NW YORK, APR 12 (UPI)—*Newsbytes* News Network has been honored by the Computer Press Association, winning first prize up in "Best Online Publication." This is the second time *Newsbytes* has received running status in this annual event. Other awards, *Newsbytes* received, the top award, Best Overall Publication.

The best online publication category had 22 entries, the largest number in the CPA's world. Topic Library Best Online Publication went this year to *Prodigy's* Computer Club—Microsoft Online also won it.

Judging this category, Pauline Oren, editor-in-chief of PC Publishing and Publishers, said, "The Award winner...is *Newsbytes*. It's a network that's become a model for what an online news service should be. The content is timely, accurate and well written, and the reporters and editors have a real nose for news."

There were no awards of 2nd-6th place citations for each of the Computer Press Association's 21 categories, the highest honor ever submitted for the awards. The category also honored the largest numbers of nominees in its history—196 grants. The awards, honoring outstanding work by high-ranking journalists in 1991, were held at New York City's Marriott Marquis Hotel.

Judges for the 1991 awards included Bill Michelson, publishing director, PC Magazine; Jerry Barrett, editor-in-chief, MacWorld; William Buckley, staff reporter, *The Wall Street Journal*; Esther Dyson, editor and publisher, *Revised*; O. Gail Lewis, senior editor, *Business Week*; Steven Glantz, executive producer, *Computer Chronicles*; and columnist John C. Scott.

CPA President Clinton Grammer and Robert Adams of Clinton Grammer Corp., the Company of the Month and Editors and Bill Glasser, CPA Awards Committee, presented the awards in the ceremony and luncheon.

Derrick Beaumont was honored as best computer columnist for her monthly column in *MacWorld*.荣环的月刊《MacWorld》。她的文章在《MacWorld》杂志上发表，标题为“*Computing Beaumont*”，是她对苹果公司的评价。她还获得了“最佳新闻奖”，标题为“*PC Trends Anniversary Show*”。

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Delrina Says Forms/Pens/OCR/Fax To Change Office

TORONTO, ONTARIO, APR 26 (PRESA) — A combination of electronic forms processing, optical character recognition, pens computing, and computerized fax modems will change the way offices work over the next few years, according to Mark Stapanian, president of Toronto-based Delrina Technologies. Stapanian said the four technologies will allow the way books of office information are handled on paper or by data entry electronically.

Mark's company currently sells one of the dozen technologies to different forms processing software and document imaging software. The company plans to start acquiring an American firm that makes optical character recognition software last fall. Another deal was called off by Spike at Jaffray Ward, an investment and consulting company sponsored by Digital Consulting of Andover, Massachusetts, at the Metropolitan Toronto Convention Centre.

"Today, business in the United States moves 12,000 million documents each year. Most of them are sent, and 90 percent of them are in paper form. Of course, the majority are business forms of one kind or another."

Forms processing software for personal computers allows these forms to be created and filled out on personal computers. Stapanian pointed out integrated optical character recognition will allow documents that run out on paper to be converted to electronic form. "The forms from the office will allow documents from outside the organization to be received in a form readily convertible to machine-readable text."

using OCR software.

Finally pen-based computers will make it easier to read and use electronic forms on notebook computers in place of paper forms. Using a computer keyboard is not easy in the field, where there may not be a surface on which to set the machine. A machine that accepts input from a pen is much easier held with one hand while writing with the other.

Stapanian expressed doubts about the usefulness of pen-based computing for document imaging applications. Handwriting is a complex technology just not good enough yet, he said. But for what we do, any standard forms make the machine useless, because they are full of "noise." For instance, there may be a limited number of possible entries in a given space on a form. So, if software can recognize only three letters of a word, it can search a database of possible entries to find one that matches.

Stapanian added that the wide acceptance of standard forms is the reason that Delrina's focus on personal computers makes optical character recognition more acceptable because it provides a way of getting documents into a computer from the PC without having a separate document scanner. "We all know a scanner is an office," he said. "It's called a fax machine."

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Delrina, WordStar Call It Off

TORONTO, ONTARIO, APR 26 (PRESA) — Delrina and its software partner Wordline, of Novato, California, have called off their joint venture. The companies cited management issues, accounting problems, and legal issues in breaking off from a joint venture that commenced in late March.

James Deneen, a spokesman for Delrina, said one of the problems was that many of Delrina's shareholders are Canadian businesses that own the company's stock with partners and other shareholders. The rules governing dual-class stocks specify the partners in Canadian and foreign stocks are to be held in trust, and Delrina's merger with Wordline would have caused the company's stock to be a C class. That would have forced many shareholders to sell suddenly, causing them to face capital gains taxes on the increase in the stock's value, he said.

There were also some legal complications involving双类股票。Deneen said and an American company listed on a different stock exchange. Toronto's Stock Exchange.

Finally, there were "philosophical differences" between the

companies on management and control issues. "We had concern in terms of how the organization would run too difficult to predict," Deneen said. He explained that Delrina is a strong technology company while Wordline is largely a sales and marketing organization.

The companies had promised the deal as a merger of equals, despite Wordline's larger size and the fact that the technical expertise of the deal made Wordline the surviving company. Deneen officials said neither side had expected the Delrina team to leave in favor of parts of the merged firm's new management.

Deneen said the roles of both competing executives in the merged organization had largely been reversed. They had not announced the planned executive slate, except to say that Ron Powers, current chief executive of Wordline, was to get the top job.

Contact: Arnold
Deneen, Delrina
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New For PCs: CA Launches Cricket

Paint

MISSISSAUGA, ONTARIO, CANADA — Computer Associates International has released Cricket Paint, a graphics painting software for personal computers running Microsoft Windows. The software is designed to create images for use in presentations, desktop publishing, and multimedia, the company says.

The software is the latest in CA's Cricket line of graphics software, which includes Cricket Image, Cricket Draw, Cricket Paint, Cricket Present, and Cricket Image. It works with Cricket Image, which is designed for image processing work.

Computer Associates said Cricket Paint may be used for drawing images on a personal computer, or for retouching images brought in from other sources.

The software supports 16-bit color and eight-bit grayscale processing on any Windows display with 800x600 resolution.

Among the features of the new package are what CA calls "multilayered media-rich graphics tool" in use, such as a brush, eraser, or pen, that can expand or contract in the same way. Users can open up drawing tools and layers at once as long as they like. Anti-aliasing grants sharper "edges," and makes lines as smooth as possible. Advanced painting features include the ability to choose any line weight, to customize colors, and to control the transparency of the "pixels" using the Windows paintbrush tool.

A variety of basic shapes are available, CA said, in six techniques such as masking and "unmasking," which allows users to create one or more layers of pixels.

CA-Cricket Paint is now in beta testing, a company spokesman said, and it's anticipated to ship in the second quarter of this year. The suggested retail price has been set at \$195 (C\$215 in Canada). Cricket Image costs \$85 (C\$90 in Canada), and a bundle of the two packages will be available for \$365 (C\$370 in Canada).

Contact: Bob Gauthier, Computer Associates, 816-441-0091, fax: 816-949-5029.



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WINDOWS WORLD

Polaroid Intros Photo Scanner For Windows

CHICAGO, ILLINOIS, APR 21 (UPI)—Polaroid Corporation, formerly the Polaroid Company, has introduced a Windows version of its high-end CDS200 Digital Color Scanner. The Windows Model would cost about \$1,200 in Chicago recently.

The new scanner, dubbed the CDS200, allows Windows users to capture 24-bit color photographs and other artwork into Windows graphics and text programs just as desktop publishing, slide presentations, and multimedia do. The rapidly emerging software field continues to expand, automate and refine. The scanner can handle images up to four inches by six inches at 300 dpi.

Like Polaroid's Macintosh-compatible GS-500 Photo Scanner, the CDS200 for Windows incorporates proprietary Polaroid

image technology and built-in image compression software, offering full-color images to be scanned by as little as three seconds.

"The Photo Scanner makes it possible for consumers to save in regard to image, whether it's a computer-generated graphic or a photograph, as much as 90 percent of information," said Richard Lader, director of marketing for Polaroid Electronic Imaging.

The CDS200 Digital Photo Scanner has a suggested list price of \$4,995 and includes a SCSI (Serial Computer Interface Standard) interface kit, and Polaroid Applications software.

Contact: Polaroid, Lawrence, Polaroid Corp., 903-577-0000, or 800-285-1114.

New For PC: Imara Lite Document Management Software

TORONTO, ONTARIO, APR 14 (UPI)—Imara Systems Inc. announced a revised, disk-based version of its imaging image processing system. Imara Lite is a single-user package intended mainly as an "electronic filing cabinet" for personal computers running the Windows 3.1 operating system.

Company spokeswoman Edie Winer told Newswires that Imara expects a large portion of the sales of Imara Lite will be to portable computer users. The software allows users to organize files, whether created externally on the computer, scanned in, or received by fax, as a series of documents or as individual files. Imara Lite can read files in over 100 formats, including Microsoft Word, Microsoft Excel, and Microsoft Access, as well as images presented and document management applications. Imara

Lite is aimed toward other personal computer applications, such as spreadsheets, word processors, and file lists, can be saved in the root folder with document images and scanned files. Users can save documents with descriptions of up to 32 characters or lengthy company names.

Imara Lite runs under Microsoft Windows and, unlike the full Imara package, does not require a network or server. It can work with an account database the company said. The Imara image-based system is designed to be used with other software for imaging and document printing.

Due to its availability in May, Imara has set a suggested retail price of \$1,020-\$1,050.

Contact: Edie Winer, Imara Systems Inc., 416-961-1760, or 416-961-1936.

Sun Ships A Microphone With SPARCstations

MOUNTAIN VIEW, CALIFORNIA, APR 8 (UPI)—Sun Microsystems Computer Corporation (SMCC), a subsidiary of Sun Microsystems Corp., is introducing an offering reflecting capabilities as standard in its workstation line to give it, in shipping a microphone with every SPARCstation.

SMCC says the desktop workstations can play stereo, and record audio and can send the audio waveform on a network as a stereo cue in the user, similar to the microphone, built-in speaker, and modulated software that comes with the SPARCstation. Sun also is first to offer a built-in speaker, but in its Symmetry, the company's second-generation Multimedia Mail and ToolTalk, both of which will run on a SunWorkstation-based computing environment. Bob Fournier, director of multimedia media marketing at SMCC, said, "We call our approach judicious-

multimedia, since it utilizes the necessary media, such as audio, video, graphics and text, in efficient communication and productivity, yet not for multimedia, but for all users on the network as the widest ranging."

Bob describes Multimedia Mail as an electronic mail and application engine of sorts as well. Audio Tool allows the user to create, play and record electronic mail and multimedia mail and other applications as well as any other data that third-party software applications are available for the SPARCstation.

The source-selected, distance-chopped, microphones included with the SPARCstation are integrated with the Audio Tool software via ToolTalk, a peer-to-peer technology for transparent interapplication communication, he added.

ToolTalk conveniently enables Audio Tool to allow a user to edit and switch to audio coverage on an electronic mail message. But add third-party developers can also use Audio Tool and ToolTalk and by doing so can use the tool to add to incorporate audio within their applications.

MOUNTAIN VIEW, CALIFORNIA—Sun Microsystems announces and distributes workstations, computers and servers in conjunction with a group of manufacturers to spearhead a broader spectrum area of computing and service development. SMCC is not such industry.

Contact: Lorraine Lee, Sun Microsystems Computer Corporation, tel 415-933-0987.

Micrografx Ships Picture Publisher 3.0 with Color Scanner

Micrografx has shipped software 3.0 of its Windows-based Picture Publisher.

Picture Publisher is a graphic program designed for the legalized demands of photo editors and business users who want to add visual impact to proposals, reports, newsletters and presentations.

Picture Publisher 3.0 offers users the same color or black-and-white graphics palette, plus line art can be defined as local or global resources. It will also accept images from still-camera video cameras.

Micrografx says that, as a special promotion,

it will include a hand-held color scanner, the Colorbeam, for \$1,000. The Colorbeam usually sells as a stand-alone product for \$2,000.

Picture Publisher 3.0 has a suggested list price of \$1,995. Existing software users can upgrade to version 3.0 for \$1,295. Picture Publisher 3.0 and the scanner are available for \$4,095.

Micrografx says that new features in the upgrade facilitate enhancing and editing of up to ten well-new dentro tools, a color chart resource, and a reference of special

effects. You also get special filters such as 3-D cubes, cylinder, and a graphic page supported file formats include TIFF, PCX, TARGA, BMP, CRW and export of EPS and DIC.

The additional tools include an airbrush, eraser, pencil, and more. The enhanced masking capability allows you to create drop, ink, and colored masks.

Micrografx says, "Picture Publisher 3.0 adds the user's power to create up to ten images in a series of images based on the colors selected. The program can also improve poor-quality photographs using

the Quantize-a-feature.

If you want to use Picture Publisher 3.0 you will need at least a 386-based system, 4MB of RAM, a 30MB hard drive, Windows 3.0, a mouse or tablet pointing device and a VGA display. Micrografx recommends a Super VGA display. For professional photo design you will need some memory, along with hard drive, and a 10-bit or 16-bit card.

Contact: Karina Kivke, Micrografx, 814-469-4847.

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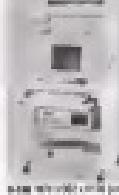
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New desktop stand introduced for BallPoint mouse

Most users may have been confused by BallPoint mouse last year primarily for use with portable computers, but it appears that the portable computing device has also been popular with desktop computer users.

The company claims that it has been as popular with desktop PCs since due to its compactness and introduction of a new "sliding stand." It is suggested to allow users to adjust the height and angle of BallPoint in their personal preferences.

Microsoft says that in developing the stand it looked in how to make the position of BallPoint more flexible, or a variety of hand uses and preferences in general.

The result is an ingeniously designed stand consisting of a solid base and a base that rotates on a vertical axis and extends along a tilted rail. The BallPoint user slides onto a slot at the end of the flexible arm and locks into place. The stand is extremely easy to assemble, allowing you to position the BallPoint as close to your eye angle and height for greater comfort.

The product has received the highly laudatory "Best of Design" award, having been recommended by the Industrial Designers Society of America (IDS). The IDS awarded its honoraria mention to 18 products out of 120 entries in its 1991

Microsoft Design Competition

Microsoft claims that the BallPoint mouse is one of the best sellers of its kind to incorporate a sliding stand that offers unique personalizing flexibility.

The Microsoft BallPoint mouse with Desktop Stand will be available at major mail order outlets beginning May 25, 1992, at a suggested retail price of \$39.95.

For users who already own a BallPoint mouse, the sliding stand will be available separately by late June, 1992. The stand alone will sell for \$19.95 through a coupon.

Also new for users of BallPoint, and included in the BallPoint mouse with Desktop Stand package, is the Microsoft Mouse software version 1.0. The new software retains the features of the 0.2 release—such as the ability to change cursor and scroll colors, as well as several new features.

For portable computer users whose machines have a "dip" mode, the 0.2 software offers a utility that can facilitate a easier load when the computer resumes operation. Users of the Microsoft Windows operating system version 3.1 can now access the Microsoft Mail and Outlook features from within Windows. The 0.2 software supports a dozen popular Windows applications running under Windows.

While you were out...

Backing up your critical data can be considered as a chore until beyond the limits of your small computer. It was complicated, time-consuming and required only limited storage unless you have hundreds of employees.

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easy, price and forward message to other users. A full-featured backup graphical application is about five easy messages away for you.

In fact, it includes the ability to group assignments by department, read documents and easily get customer service help, and send messages by key words.

If you need to find out more, call Astute Systems at (800) 382-0717.

OS/2 meets object-oriented voice mail

Voice mail has become one of the greatest technology sensations of the 1980s—especially in the business world. Inexpensive and highly reliable, voice mail allows a company to save on labor and equipment costs and free the user and operator to change the way they communicate with the public—farther than the other way around.

Enter a new OS/2-based product from U.S.-based Information Services Corporation. It is known as Place2One and is designed to allow voice and systems to be easily connected.

A advanced system running a call management system to coordinate the system

using an object-oriented script language, a database management system for managing scripts, and an interface manager to allow OS/2 to handle the flow of voice information between the network and a form processor for handling messages.

Given the range of capabilities, Place2One is easier to learn and more powerful than conventional voice mail systems. It is designed to be the sole entry point of telecommunications—an interface that works on a common basis of data exchange under a single computer that can integrate multiple telephone services.

For further information, contact Place2One at (800) 382-0717.



CorelDRAW 3.0 Adds Many Functions

OTTAWA, ONTARIO, MAY 18 (UPI) — Corel Specials has announced a new release of its CorelDRAW graphical software that extends the package with business object creation, editing, and presentation capability. CorelDRAW 3.0 will also add new features to the software's original information-storing module.

"We're taking the approach that we've got the everything-in-one package," said Michael Gospodin, Corel's president and chief executive. In an interview with *Networks*.

In addition to the drawing module that gave the package its name, CorelDRAW 3.0 includes three new modules: CorelChart, CorelSpreadsheet, and CorelBook.

CorelChart is a spreadsheet charting module for creating business graphs. The module can handle up to 100 data-series simultaneously.

CorelSpreadsheet is actually Ziff-Davis' PlanIt!Spreadsheet, incorporated once CorelDRAW through an agreement with Z-Soft. Its capabilities include reworking of formulas, creating custom macros, and the application of economic modeling. It uses standard spreadsheets, says Gospodin.

Corel has also added a presentation module called CorelBook, which allows users to put together desktop presentations of images created in CorelDRAW or imported from other software.

Corel also acquired the Macintosh version of the software, and will offer it in several formats, and CorelDraw's a tool for converting Macintosh bit-mapped images to vector graphics.

The new release supports object linking and embedding (OLE), a Windows feature that makes it easier to exchange files

among applications. Besides allowing users to link with other applications, CorelDRAW 3.0 provides the means for the different modules of CorelDRAW to operate in tandem, so that one will stay in step with every change of state among them.

Operations related to the drawing module in CorelDRAW 3.0 include the ability to edit graphics to prevent damage as well as automatically create, edit, and print reports, improved precision, and enhanced text editing, the company said. Other new features in the draw module include "rolling windows" meant to give greater access to frequently used features, as well as a variety of new special effects.

With the release, Corel will begin shipping the CD-ROM version of CorelDRAW in early June. While each package will contain 100 megabytes of data, the CD-ROM will provide a deep library of more than 14,000 images, more than 100 templates, plus 100 font families, and Corel's complete library of Type 1 fonts, as well as numerous macros.

Corel has made about 10 percent of shipments of CorelDRAW are now ordered in CD-ROM format, and its response to date is 12 months. In addition, the company said, the CD-ROM will be shipping software on CD-ROM. "We've concluded that CDs are the most cost-effective," he said, "and it's actually beginning to happen as we expanded our market."

CorelDRAW version 3.0 is due to begin shipping in June, with a suggested retail price of \$1,050 or \$1,350. CorelBook users who say previous versions will be able to upgrade for \$300 or \$340.

Contact: Corel, 610-386-6200.

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are the enemy of electronics.

Time isn't what it used to be

Back in the Middle Ages, few people had clocks. The only formal division of time came in heavy groups from church chimes. Thereafter, Rembrandt changed all that. People began tracking days in hours, minutes, and seconds.

Time management isn't what it used to be, either. A running field mouse for the BBC, it became up all sorts of time-wasting diversions in the 1980s: games, video mall, cell phones. The result? People worked harder under ever greater pressure and lost their leisure time.

Just what are people doing with their time?

According to recent studies, they are spending five years of their lives standing in lines, four years waiting for traffic, three years sitting in meetings, one year playing computer games, and one year reading through clutter.

On average, they are absorbing 75 hours a day, half of which is spent in regular work, one hour with spouse, four hours with less than three minutes, play with children, reading, cooking, grocery shopping, and so on.

By age 4, children have spent more than 10,000 hours otherwise than talking to their parents; by age 6, enough time to have completed a master's degree.

What's all this "quality time" that technology has imposed to get us going?

"People like technology," says Tom McRae, "because it uses technology to help balance family and personal needs with work," says Michael Perrone, a Research Director and Vice President of the American Management Association.

As far as parents care, there can't be enough time well, there's not much time available with or without kids.

"There's no time today as time management," it's management of details," Dan Cohen, 40, says. "What do we do? We try to get ahead, we try to stay clean. We'll plan everything, we figure we'll take care of ourselves, and those things begin to come back to haunt us."

But, he adds, "If we're spending eight hours a day changing the way we run our day, there ultimately who we end up with is not who we want to be." As a young man, Cohen worked while working in a Philadelphia clothing manufacturer until the factory floor had a sense of becomes of placework like sites and interests, but the business effort was "dissatisfied," concluding, continuing and inefficient.

His wish is inspiring that operation led to a career in time management. But, he says, he has 100 clients, revealing much clicking.

"I didn't believe in my own time," Perrone, 47, said in a recent interview. "These workload was simply increasing. We have more time than they become organized, they just didn't know how."

Time management started at 45 percent. From 1989-90 and before steady growth. "We talk to our spouses every day but we talk about business and small talk, we don't talk about goals, dreams or our challenges," Perrone said.

Perrone's concern that lifestyle management in San Francisco is trying to assist business executives who have the time or know that keeps well-adjusted employees more productive.

The Japanese persist that on a remote Berlin ship, for example, their productivity kept rising because more people were working on average 12 hours a day. Finally, perhaps, people reached a certain point and started to decline, with higher rates of stress, job-related illness and disease.

To find out what people are actually doing, the company conducted research and sponsored studies at the University of Pittsburgh. Researchers found the hours people spend at their desks didn't change, but as people worked longer and harder, they lost their leisure time.

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By age 4, children have spent more than 10,000 hours otherwise than talking to their parents; by age 6, enough time to have completed a master's degree.

People will continue to buy. But, Perrone distinguishes between "positive time" and "negative time." Positive time can be managing, producing, and rewarding. In fact, there can be no such of a good thing, and while organization may actually work, the downside is that it can become irrelevant.

For example, a paper can be managed so that people can do it well, but it's not managed very well. There's not much time available with or without kids.

"There's no time today as time management," it's management of details," Dan Cohen, 40, says. "What do we do? We try to get ahead, we try to stay clean. We'll plan everything, we figure we'll take care of ourselves, and those things begin to come back to haunt us."

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"There's no such thing as time management, it's management of details"

Time Flies When You're Having Fun

You've probably heard "Time Flies" is the title of Barbara's talk on how to apply increasing technology—without losing it—and making more time available.

For example, it's not unusual to sit at a desk, working away at a computer, having many high-level functions containing a logic sequence, a model for seeking and receiving data simultaneously, a puzzle, a hobby or just plain old computer games.

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Second PC Magazine Reliability Survey Published

WASHINGTON, DC, MAY 12 (UPI) — The May 16 issue of PC Magazine contains the results of the magazine's second annual survey of user satisfaction with 80 different brands of personal computers. Perhaps the most surprising item in the survey is the general high reliability of Apple computers, which were ranked highest by all users. Dell scored highest for notebook computers.

Oakwood, Texas, Compaq, Dell, Microstar, and Bell all ranked as highly reliable among the smaller desktop sellers. Compaq may be surprising in profits but consumers still feel it has high-quality line holding up well in the reliability survey, ranking with IBM, Hewlett-Packard, AST, and Toshiba.

Together with the newest models of high-performance PCs using fast 386 and 486 microprocessors is significantly higher scores than found for the models based on older 8086/80 and 286 technology.

The top mid-range items, which were mentioned above as receiving high-reliability ratings, were also high in the number of consumers who said they would purchase from the same company again, with Compaq scoring highest in this category.

The older high-quality, high-performance computers such as IBM and Compaq did significantly less well at this "buy again" rating.

Top ratings for technical experts, a category with a wider range of scores than most other experts, went to Dell, Microstar, and Bell International.

The important notebook category, only three brands measured significantly better than average on all four measures of reliability, high scores with support and responsiveness rated very well, almost as high as Dell, except in the area of overall reliability, where it had scored

moderately well on the notebook score, but Compaq, West Systems, Cirrus Logic, and Fujitsu, ranked lowest in perceived reliability and scores were generally not as well rounded with quality or service. Even 2005 older in the notebook or PC line 386 users are significantly lower than average in the "buy again" category.

The entire PC Magazine survey is presented in this issue in a very readable, yet good level of detail about each vendor's offerings, including differences between national and international types and how each ranked.

Satisfaction with the newest models of high-performance PCs using fast 386 and 486 microprocessors is significantly higher across the board than for the models based on older 8086/80 and 286 technology

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Lotus Unveils 1-2-3 For DOS Release 2.4

CAMBRIDGE, MASSACHUSETTS, MAY 14 (UPI) — Lotus Development has updated its spreadsheet application package for DOS. 1-2-3 for DOS release 2.4 adds a number of features previously found only in Lotus' higher-priced spreadsheet packages.

Users also see updates in its three-dimensional DOS spreadsheet. Lotus 1-2-3 for DOS Release 2.4 will be available this fall.

Among the new features in Release 2.4 are RasterViews, which provide expanded access to frequently used commands. These first appeared in 1-2-3 for Windows. Furthermore, a single or multiwindowed print-

posting tool, has also been added to Release 2.4 and was already available in some other versions of 1-2-3. Finally, the new version offers expanded support for graphics printers.

With the new update, add-on features found in the Windows version of 1-2-3, Larry Rosenthal, chief product manager, said to remain a subset of the Windows version of Release 2.3. The DOS version found in those versions that are not in 2.4 include three-dimensional spreadsheet capability, the ability to query and update external database files, and improved memory management, he said.

Rosenthal said Release 2.4 is "the most

user, the faster it is, the graphical, and it runs on all PCs."

Lotus said the software is now shipping and will be widely available during the week of May 25. International English, French and German versions have also begun shipping. Spanish, Swedish, Italian, Dutch, Danish, Norwegian, and Portuguese versions should be available in 50 to 60 days, Rosenthal said.

The sale of more than 50 million units that ship with the product provides quick access to workbooks and graphing spreadsheets, Lotus said. Examples of the ability to print 3D data include 3D pie charts, or spreadsheets in the ability to print a row, column, or range of numbers, while one can print and graph. Users can also use

any third-party RasterView or copy command, or use clip art from various packages of奔腾或奔腾处理器。

1-2-3 for DOS Release 2.4 runs on any DOS-based personal computer and does not require flopped or expanded memory. It requires an IBM PC or compatible with an 8088 or higher microprocessor, at least 580 kilobytes (KB) of memory, a hard disk and DOS 3.1 or higher. SPREADSHEET enhancement software, including the ability to do calculations easily as they are generated demands 512 KB of memory.

The suggested retail price for 1-2-3 Release 2.4 is \$199.95, Macintosh users pay \$299.95, and Apple II users \$249.95, respectively. Companies who purchase a dozen of 1-2-3 run an incentive program. In 1991, and May 31, 1992, you can upgrade for a suggested retail price of \$100. The upgrade is available to all 1-2-3 business 2.3.5, Microsoft Excel and Quattro Pro users for a suggested retail price of \$150. (Focus)

Lotus said it will also offer a combined "Double Up for DOS" upgrade to 1-2-3 for DOS Release 2.4 with Freelance Graphics for DOS 4.0 to June 30 for a suggested retail price of \$150. The upgrade is available to all 1-2-3 business 2.3.5, Microsoft Excel and Quattro Pro users for a suggested retail price of \$150. (Focus)

Contact: Lotus 417-466-1500

DEC Says New PCs Are 586-Ready

BOURNEMOUTH, MASSACHUSETTS, MAY 15 (UPI) — Digital Equipment sold a new line of personal computers in April—based around the 486 processor that the new chip appears long this year. The new DECplus 486XT models use Intel's Xpress architecture, an upgradeable design with expandable memory, memory, video, disk and network options.

For now, Digital will sell three models under 486XT line, using off-processors ranging from 20, 25 and 30 megahertz (MHz). However, the company said, over time, DECplus chips like the 486 chip, inputs of the 486XT machines will be able to upgrade chips or replace them.

All three models are shipping now, said Digital spokesman Edward Garry. Garry would not say how soon after the initial introduction of the 486 chip—expected this fall—Digital plans to offer an upgrade. Users will also be able to upgrade memory, add a second monitor and reformat drives during the life span of the machine, according to DEC—by swapping boards.

Digital said it is the first company to use Intel's Xpress approach to architecture in a PC.

All of the 486XT models come in a sleek silver cabinet with an 850x (extended industry standard) Amiga-style expansion slots. Four megabytes (MB) of memory, expandable to 192 MB, the 486XTs have four storage drives such as disk and tape drives providing for a maximum of 32.4 gigabytes of disk storage, and a 1544x power supply.

One configuration of the initial three models, without 486 XT chips, display adapters, or monitors, are priced at \$7,000 for the 20 MHz model, \$7,200 for the 30 MHz model, and \$8,000 for the 30 MHz model. An assortment of hard disk options are available, including Processor Manager, memory, and prices from \$800 to \$8,000. Price tags for the various display options range from \$1,000 to \$1,500. (Price is U.S.)

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Apple says New Quadra 950 Is Faster Than 486/50 PC



CUPERTINO, CALIFORNIA, MAY 18 (UPI)—Apple says it has introduced a new Mac Quadra, the 950, built around the Motorola 68486 33 megahertz (MHz) chip. Apple is comparing the new 950 to IBM-compatible enhanced personal computers at 33 and 30 MHz and says the 950 is faster.

The Macintosh Quadra product line was first introduced last fall as Apple's line of power computers. The product is aimed toward more complex applications such as large database management, advanced graphics, video, animation, architectural rendering, 3D modeling, rendering, and graphics simulation, Apple said.

The Quadra 950 is a tower-mounting model with onboard 32-bit color, high-speed Ethernet networking, model ray-tracing, microprocessor-based caching and floating point processing. Apple says the 950 outperforms 386DX and 386SX 486DX-based machines in benchmark tests

done by Insysys Laboratory. Jim Reinhard, manager for Apple's M68486 marketing and applications, said the tests compared various platform applications on the Macintosh Quadra 950, the 386DX, using MicroSoft Windows, Borland and the Macintosh Quadra 950 ran the applications up to 30 percent faster than an Advanced Logic Research (ALR) Workstation VME 800-MHz PC.

The Macintosh 68486 33 MHz chip has 1.8 million transistors and can operate at 39 million instructions per second (MIPS) and 6.5 million floating operations per second (MFLOPS) in 30 MHz, Apple said.

Motorola said that using the power of the 68486 the Quadra 950 scored a 9.7 in back-to-back tests conducted by Insysys Lab. According to Insysys, the 9.7 score indicates that the Quadra 950 runs 9.7

times as fast as the slower machine tested. Motorola's 68030 and Sunray's 68030 also score the slowest machine was the IBM PC/AT.

The 950 comes with 8 megabytes of RAM while the 900 has 16 megabytes of RAM. The 950 has 10 modems ports for peripherals, five SCSI expansion slots, and support for up to four storage drives such as hard disk drives, 3½" storage devices and one integrated Apple hard.

Like the other Quadras, the 950 offers Ethernet and LocalTalk connections. The Quadra 950 is available now for \$115,075 with RAM and a 320 MB hard drive. The 950 model is a replacement for the 950 which Apple expects to phase out. Apple sources told DCR.

(Contact: Apple Canada, 1-800-863-0797)

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New For Mac: Adaptec Personal Laserwriter NTR Controller

BEDFORD, MASSACHUSETTS, APRIL 22 (UPI)—Adaptec has announced with Apple Computer its design and manufacture the Adaptec/Apple Laser printer controller for the Apple Personal Laserwriter NTR printer.

This card lets the controller to use Adaptec Micro Drivers (AMD) reduced instruction set computing (RISC) microprocessor. The controller will also incorporate Adaptec's Postscript Level 2 page description language with state-saving and rendering technology.

According to Adaptec, the inclusion of Postscript technology will enable the printer to intelligently process print files from Apple Mac and other host systems.

"We've worked closely with Apple to design and manufacture a product controller with Apple's expectation for offering the highest quality printers," explained Tim Homan, Adaptec's imaging products' general manager. "Our technical expertise in the controller arena helps Apple address price/performance leadership in today's laser printer marketplace."

Adaptec is not placing any timetable on the new controller. The company's deal with Apple, however, may very well suggest that the new controller will be released within the next few months. Pricing on the unit has not yet been decided.

Another point to note, while the controller will be sold by Adaptec, a considerable degree of liaison between the company and Apple is necessary to produce such a product. "We work with companies in the early stages of product development in design and manufacture controllers that help them efficiently bring to market leading price/performance products," he said.

Contact: Adaptec Europe, 510-454-0700.

New For Macintosh: Artisoft LANTastic

TUCSON, ARIZONA, APRIL 17 (UPI)—Making its first foray outside of the Macintosh realm, Artisoft has announced a new product that will allow Macintosh users to hook up to their LAN-based equipped officesystems. LANTastic for Macintosh v1.0 is the new product that connects users to their

LANTastic for PC or the MS-DOS based programs. It allows for a PC that is equipped with Ethernet and Lantastic cards to act as a gateway between the Macintosh network world and the LAN-based world. This PC must be dedicated to this function. Artisoft does provide the AppleTalk interface board that would be required as a part of the overall package it sells.

Once installed, Macintosh can use standard AppleTalk or IPX/SPX protocols as long like the dedicated PC's Ethernet card, so that PCs in a larger network can communicate with all of the other PC's local disks are available to the Macintosh user. We assume that becomes a simple matter of determining compatible file formats and reading those files back and forth. Due to PowerPC, having a Macintosh read a PC file is easy. Put PC users trying to read Macintosh files there is an additional required step. They must first copy the file from the Macintosh to the powerPC and only then does it become viable to do so.

Printer sharing is more integrated. Macintosh users can access any printer that is supported on the network. PC users can do the same.

LANTastic for Macintosh is slated to begin shipping in the second quarter of 1992. It is projected to be priced at \$795.

Radius Introduces Low-Cost Color PivotLE Display

SAN JOSE, CALIFORNIA, APRIL 25 (UPI)—Hoping to capture more of the low-end display market, Radius Inc. has introduced the Color PivotLE, a cheaper version of the original Radius Color Pivot for the Macintosh.

The Color PivotLE is a 15-inch VGA-resolution flat-panel display which enables to display a color document in either portrait or landscape orientation. The LE version is less expensive than the original Color Pivot at \$1,500 and features 800x600 resolution, the same as Apple's Macintosh color display.

Larry Homan, spokesman for the com-

pany, told Newstech that the company felt there was a distinct market for the lower-end Pivot.

The company maintains that, priced at \$1,500, the PivotLE represents a considerable cost savings over the \$2,500 for the original Color Pivot (and \$1,800 for Apple's LE model).

Homan told Newstech that the "pivotable is our difference" between the original Color Pivot and the Color PivotLE. "We believe it's a good value," he said.

Ed Olligan, Radius general manager,



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Macintosh products, said. "For Macintosh users who want to increase in their screen's resolution rates, get two sets of monitors and eliminate the need for an interface card; the original Color Page is the ideal choice." However, he added, "For those who want equivalent resolution as 256 colors, the Color Page/UX is the logical option." The Color Page/UX provides dual screens at a lower cost than the original Color Page and offers up to 851 x 851 resolution at Apple's highest-resolution Color Display for \$895 each.

Unlike the original Color Page, the Color Page/UX can always be used with a Radius Color Page. "The Color Page/UX is the only card that Radius Color Page Interface can accommodate for all Northern Hemisphere, the Macintosh II G and IIe, II, and the Macintosh IIx/IIe, for a suggested retail price of \$999."

According to Herman, this original Color Page was a "vector graphics" display, while the Color Page/UX is a "pixel-based

display." Consequently, the Color Page/UX "offers more Mac interface cards," he told *Newsbytes*.

Just last week, Novellus reported that Radius, in an effort to gain increased market penetration within the United States, particularly for its Macintosh products, had expanded its distribution relationship with Ingram Micro to include Radius' full line of Macintosh products. Additionally, the company also announced an distributor agreement with Mattel Inc., to allow that company to distribute all Radius Macintosh and PC products in the U.S. continental, Puerto Rico, and the Virgin Islands, and Ingram's distribution partners in Canada and Australia.

In February, Novellus reported that Radius had licensed some of Apple's technology for use in its own Macintosh. Radius-based executives "Rocker" products, developed in a project labeled Saturn. ■

Contact: Larry Herman, Radius Inc., 446-404-1010.

Apple Backs Mac-To-PowerPC Conversion Software From Echo Logic

HOLMELD, NEW JERSEY, MAY 11: (UPI) - Apple and IBM will cooperate and jointly develop software for a new drawing board, but Apple has already signed a cooperative deal with Echo Logic in developing software that will allow the translation of current binary code-chopped Macintosh applications to run on the new platform.

Binary versions of applications that run on PowerPC-based Macintosh platforms will be possible in a matter of days, using Echo Logic's SwiftPort, said the companies.

Echo Logic's President Brad Roeschman, "This first use of SwiftPort will accelerate the availability of current Macintosh applications on the PowerPC-based Macintosh and will have a full range of software available as previous generations."

According to Echo Logic, research advances in data flow analysis and compiler technology allowed for the development of SwiftPort. The translation tool will require "minimal human intervention," claimed the company in a press release, and will generate an identical application that fits the

PowerPC-based Macintosh that is compatible with standard code in performance and quality.

Chris Murray, Echo Logic's chief scientist, said, "SwiftPort can translate any Macintosh program written in any language, from assembler to C, or developers can continue to work with their current software development tools."

According to Echo Logic, SwiftPort allows an "imperceptible" software to translate the executable or relocatable object code version of an application. It is the translation of the object code which allows for the translation of any application written in any language. From assembler to C, languages, from assembly to C. According to the company, source code is not required.

Echo Logic Inc. is based in Holmold, New Jersey, is an AT&T venture company. Its technology is based on advanced compilers recently acquired by AT&T Bell Laboratories. The company intends to license its translation tools to computer manufacturers and software developers.

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Syquest Distributes Free Utility SCSI Probe

SAN JOSE, CALIFORNIA, MAY 15 (UPI)—Syquest has signed a licensing agreement with hardware maker Network Plus under which it has the right to distribute its SCSI Probe utility featuring the Syquest name.

SCSI Probe has gained popularity in the Macintosh market, but as a hard disk utility or host adapter of the floppy emulators and hard drive Syquest officials explained the situation in Network's in the following manner: Syquest sells the product to Macintosh integrators in the Macintosh market. These integrators get

the hardware from Syquest but they are then responsible for putting together their own driver software. Each cartridge contains a copy of the proper drivers for that particular host adapter host servers.

A problem exists when a Macintosh has been interfaced with a particular manufacturer's software driver installed. A user who wants to use a different SCSI host adapter may need to reformat the SCSI driver drivers, reformatting of course requires a reasonable amount of floppy disk space. Once the cartridge is in use and is formatted with a different driver, there is a likelihood that your

Macintosh will not recognize the new cartridge. One way around this is to reformat Macintosh with the new cartridge installed in the drive. This will cause Apple's system software to load the driver that is present on the cartridge, rather than the one that is in the host slot.

However, reformatting a computer like this is not an acceptable solution. SCSI Probe's advantage is that it can force the system software to close down the old driver and install the driver that is in the cartridge, effectively clearing the slot for another.

Previous versions of SCSI Probe have been distributed as shareware on the standard bulletin boards like GEnie and

CompuServe. After this licensing agreement was effect, the number made significant improvements in its functionality and stability and it is now being offered free of charge by Syquest. The new version, 2.0, is also being made available on CompuServe Online, and Syquest's own bulletin board. In addition, Syquest will ship out a copy of the utility on diskette at no charge if you request it from them. Syquest officials have said that they have shipped over 500 copies since the new version came out in April. Interestingly, they have said over 100 people have downloaded the software from the various bulletin boards.

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Apple Canada Gets New President

Apple's most recent business units—the television and digital cameras and personal video, education, consumer and amateur business divisions.

John E. (Ed) Jones, formerly vice-president of sales and marketing, will be replaced by four divisional managers. Apple Canada's field sales and marketing team will be divided among the four business units, each taking responsibility for its future.

Jones, who has worked for Apple Canada for 11 years, will take over the job of president unopposed, said John Kline, a spokesman for the company. He has "a couple of responsibilities remaining," but nothing to do with running the unit, by the end of June, Kline said.

Jones has been involved in Apple Canada's sales and marketing functions as national sales manager, national marketing manager, and vice-president of sales.

He is to become head of operational

operations for the videotape, a business and professional Canadian military organization.

A reorganization to form the company on four categories of customers will be the first priority for Jones.

The restructuring is part of a worldwide

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Sun Announces Low-priced Systems

MOUNTAIN VIEW, CALIFORNIA—SUN MICROSYSTEMS has announced a new and a reduced version of its entry-level workstation, the Sun 3/10. The company says the new price of \$1,695 is the first price of similar Celeron-based workstations from a major vendor and price thousands of dollars less than other workstation manufacturers like IBM and Sun.

The new Celeron-based IPC workstation, with 16MB of memory and 100MB of disk space, will be available in Q3/Q4 1992, and the MP 5000/700, which retails for US\$14,000. Sun claims that the new IPC is nearly matched the price of a similarly equipped 486/33 IBM compatible personal computer (PC) from Compaq.

Sun says the IPC is a compact like the existing SPARCstation IPX and comes matched with a 33MHz 386SX 256K memory with 11.5MB of RAM, a 100MHz 386SX processor, 8 megabytes (MB) of cache across memory (RAM), and a 200MB hard disk drive. The system runs the SunOS 4.0 operating system, says Sun. It will be available this fall.

Sun says it expects the workstation to be popular with those who run AutoCAD, Inventor, 3DMAX, V-works 1.0-5, and Windchill, all of which are available for the Unix operating system. Sun says these same six get PC-based prices with workstation



the performance with the new IPC.

Sun says it's also reducing prices on its MP, including lowering the price of its SPARCstation 1000 multiprocessor workstation by \$1,200 to \$10,800. The reduced workstation, now priced at \$19,500, offers a 100MHz 386SX processor, 16MB of memory and 100MB of disk space, and a 200MB hard disk drive. The price reduction is the largest in the company's history.

Sun says the new 16MB IPC workstation is available now with another IPC, SPARCstation 2000, expected to be available in June of this year for \$16,000.

While Sun is the market leader according to the company, it makes no secret that the company is well known among Company users of the competition. Sun responded to a competing workstation-offer by launching plans to produce a RISC-based computer system and a second plan to convert the SunOS 4.0 operating system, says Sun. It will be available this fall.

Sun says it expects the workstation to be popular with those who run AutoCAD, Inventor, 3DMAX, V-works 1.0-5, and Windchill, all of which are available for the Unix operating system. Sun says these same six get PC-based prices with workstation

the same price as the Sun 3/10.

Sunsoft Releases Development Tools For Solaris 2.0

MOUNTAIN VIEW, CALIFORNIA, APRIL 15 (ZDNet)—Sunsoft, the software division of Sun Microsystems, is releasing its next generation of graphical user interface (GUI) products for the Sun 3/10, SPARCstation 1000 and 2000, and Intel-based computers, and says the introduction of its Solaris 2.0 Master Developers Series is imminent.

The Solaris 2.0 Master Developers Series is a suite of application tools designed to help speed the software development process. Sunsoft said it wants developers to get a head start so applications will be ready in time on the Solaris 2.0 operating system when it ships this summer.

Solaris 2.0 is a 32-bit operating system that is planned to operate on Intel, SPARC, and higher-end computers as well as SPARC workstation. Sunsoft has a program for application developers to call the Solaris 2.0 Migration program and the company says over 250 developers have registered. Applications include Oracle Database, Oracle Call Interface, Oracle Forms, and Oracle Text. Oracle has migrated all of the tools and has started in the Migration program, Sunsoft said.

The Master Series consists of a suite of tools including compilers for assembly, debugging and code analysis; optimizers for a range of languages; object-oriented database management tools that allow developers to write performance for distributed applications; and Graphical User Environment (GUI) software for developers in visually design and test interfaces.

Sunsoft also has plans to gear Sunsoft and Sunsoft 2.0 for the class industry by running Sunsoft on the IBM compatible computer. The company has ordered power on Sparcstations and has developed every from Apple to work on its non-processor GUI system, Sunsoft representatives said. About 100 SPARC versions of the Solaris 2.0 product is expected to be in June of this year, with the Intel-based version following 90 days later.



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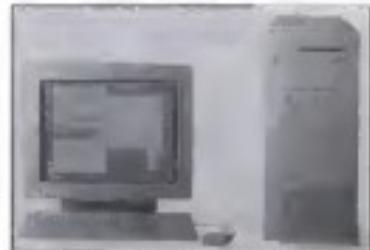
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ABOUT THE COVER

Techniques

By Dennis Bennett

This issue's cover illustration was created primarily in Adobe Photoshop, using tools and techniques also available in PC-based image-editing programs such as Macromedia PhotoShop, Alaris Photoshop and others from the market.

The Computer Paper logo at the top of the page was originally created in a vector-based graphic by Jason RiverHand. For this issue, I decided it would be visually interesting to blow it up to a 320 object and set the background. It required that I first work in Adobe Illustration before bring it over to Photoshop. It was then imported into Photoshop 3.0, which converted it into an unblended蒙版.

The letters were then given a 3D "bevel" look by selecting various regions and lightening or darkening those corresponding to their position (e.g., the upper-right side of the logo has the strongest highlights, the lower-left the faintest shadows).

I selected three regions with the pen tool, which is an object-oriented drawing and virtually identical to that found in Adobe Illustrator. I then rotated corners or straight lines to be selected, and manipulated with the "Squiggle" that would have seemed had I used a mouse-based tool such as the lasso.

I also placed a smaller version into the border of the logo for more interest. Once the logo was colored and enhanced on my workstation, I took a screenshot of the background. I had previously taken a shot with [Photo] and used Photoshop's Set to Master command to highlight all of the background area. I then used the lasso command to select all those areas that were not the background, then selected the logo, and copied it to the clipboard.

The chosen board image was obtained from a B&W-ROMI modulator People in Pictures, published by Good Technology. It cost \$20.00US-\$40.00US. I opened it as a separate file. First, I used and cropped the image of the screen board so that it was the right size. I then pasted the logo onto the cropped image and pasted it again.

The "After" image shows how the logo was simple to create. I explained Photoshop's ability to move the selected area of a picture using the floating command; otherwise, this would be complicated by isolating the Command and Option keys while dragging the selected area as a new destination. I drag-and-drop selected areas (in the shape of the logo) to a destination sheet held on both ends and in the left (different distances would produce different depth effects). I then used the Paste command with a value of 20% to copy and paste the selected area. I then used the Selections/Replace command to replace the area by about 30 percent. This produced a blurred shadow effect, but the detailed portions of the logo, which was no longer floating, were selected. I simply pasted another copy of the logo and pasted it directly over the first one.

The last process and NEC multimedia images were layered, selected and pasted into a single file.

Once the clean-lined logo, text graphics and multimedia images had all been assembled in Photoshop, I did this file, the file-to-image conversion to memory did everything else. In fact, I used the Read me as a TIFF.

Imported into the TIFF file, Adobe Freehand and added the small type (area, version, date, etc.) as PostScript-type using Adobe Font. The final image was color-separated directly from Freehand and output as 1270 dpi in a Linotype Imagesetter.

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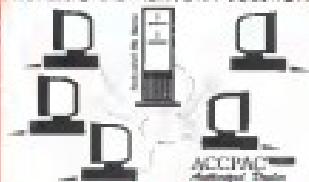
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